

SHIAWASSEE COUNTY

Community Health Status Assessment

2016



Examining the Health of Shiawassee County

FOREWORD

September 2016

Dear Resident of Shiawassee County:

Memorial Healthcare, in collaboration with the Shiawassee County Health Department and the Shiawassee Community Health Needs Assessment Team, conducted this community health survey for our county this year. We are pleased to publish the results of the survey and we are indebted to our community partners for their work in making this project happen.

This report is based upon data obtained from responses to written surveys that were conducted in February 2016 through May 2016. These surveys focused on adults ages 19 and older. In addition, this Community Health Needs Assessment contains youth data from a sample of 7, 9, 11th grade students in Shiawassee County using the Michigan Profile for Healthy Youth survey (MiPHY).

We are grateful to the several hundred community residents who took the time to give thoughtful responses to this survey. These results will assist local agencies to identify health problems and assess them to address the needs of Shiawassee County residents.

It has been over four years since the last comprehensive community assessment was conducted. To address the need for an updated study, Memorial Healthcare re-engaged the Shiawassee Community Health Needs Assessment Team. In order to maintain complete objectivity throughout the survey process, the team once again engaged the expert services of the Hospital Council of NW Ohio to administer the survey and compile the results.

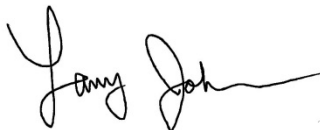
We encourage you to use this report in your planning process and to collaborate with other community agencies to address the identified issues in order to improve the health of our community.

If you have any questions or concerns, please feel free to contact Abbie Tipton, Memorial Healthcare Community Resource Liaison at (989) 729-4724 or email her at abbie.tipton@MemorialHealthcare.org.

Sincerely,



Brian L. Long, FACHE
President & CEO
Memorial Healthcare



Larry Johnson, RS, MS
Health Officer/Director
Shiawassee County Health Department

FOREWORD

This report has been funded by:

Memorial Healthcare

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Health Delivery Inc., Shiawassee
SafeCenter
Shiawassee Regional Education Service District
Shiawassee County Health Department
Shiawassee County Community Mental Health Authority
Michigan Department of Health and Human Services
Catholic Charities
Memorial Healthcare
Memorial Healthcare Foundation
Michigan State University Extension
Respite Volunteers of Shiawassee County
Shiawassee Great Start Initiative
Greater Lansing Food Bank
Shiawassee Hope
Community Members
Owosso Public Schools
Shiawassee Family YMCA – Live Healthy
Shiawassee Health and Human Services Council
Shiawassee Ministerial Representatives
Shiawassee United Way

The 2016 Shiawassee County Health Assessment is available on the following websites:

Hospital Council of Northwest Ohio - <http://www.hcno.org/community/reports.html>

To see Shiawassee County data compared to other counties, please visit the Hospital Council of Northwest Ohio's Data Link website at <http://www.hcno.org/community/data-indicator.html>.

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EXECUTIVE SUMMARY

This executive summary provides an overview of health-related data for Shiawassee County adults (19 years of age and older) who participated in a county-wide health assessment survey during spring 2016. The findings are based on self-administered surveys using structured questionnaires. The questions were modeled after the survey instruments used by the Centers for Disease Control and Prevention for their national and state Behavioral Risk Factor Surveillance System (BRFSS). The Hospital Council of Northwest Ohio collected the data, guided the health assessment process and integrated sources of primary and secondary data into the final report.

Primary Data Collection Methods

DESIGN

This community health assessment was cross-sectional in nature and included a written survey of adults within Shiawassee County. From the beginning, community leaders were actively engaged in the planning process and helped define the content, scope, and sequence of the study. Active engagement of community members throughout the planning process is regarded as an important step in completing a valid needs assessment.

INSTRUMENT DEVELOPMENT

One survey instrument was designed and pilot tested for this study. As a first step in the design process, health education researchers from the University of Toledo and staff members from the Hospital Council of NW Ohio met to discuss potential sources of valid and reliable survey items that would be appropriate for assessing the health status and health needs of adults. The investigators decided to derive the majority of the adult survey items from the BRFSS. This decision was based on being able to compare local data with state and national data.

The Project Coordinator from the Hospital Council of NW Ohio conducted a series of meetings with the planning committee from Shiawassee County. During these meetings, banks of potential survey questions from the BRFSS surveys were reviewed and discussed. Based on input from the Shiawassee County planning committee, the Project Coordinator composed a draft survey containing 115 items for the adult survey. The draft was reviewed and approved by health education researchers at the University of Toledo.

SAMPLING | *Adult Survey*

Adults ages 19 and over living in Shiawassee County were used as the sampling frame for the adult survey. Since U.S. Census Bureau age categories do not correspond exactly to this age parameter, the investigators calculated the population of those 18 years and over living in Shiawassee County. There were 52,441 persons ages 18 and over living in Shiawassee County. The investigators conducted a power analysis to determine what sample size was needed to ensure a 95% confidence level with a corresponding margin of error of 5% (i.e., we can be 95% sure that the "true" population responses are within a 5% margin of error of the survey findings.) A sample size of at least 381 adults was needed to ensure this level of confidence. The random sample of mailing addresses of adults from Shiawassee County was obtained from Allegra Marketing Services in Louisville, KY.

PROCEDURE | *Adult Survey*

Prior to mailing the survey to adults, an advance letter was mailed to 1,200 adults in Shiawassee County. This advance letter was personalized, printed on Shiawassee Community Health Needs Assessment Team stationery and was signed by Brian L. Long, President and CEO, Memorial Healthcare, and Larry Johnson, Health Director, Shiawassee County Health Department. The letter introduced the county health assessment project and informed the readers that they may be randomly selected to receive the survey. The letter also explained that the respondents' confidentiality would be protected and encouraged the readers to complete and return the survey promptly if they were selected.

Three weeks following the advance letter, a three-wave mailing procedure was implemented to maximize the survey return rate. The initial mailing included a personalized hand signed cover letter (on Shiawassee Community Health Needs Assessment Team stationery) describing the purpose of the study; a questionnaire printed on colored paper; a self-addressed stamped return envelope; and a \$2 incentive. Approximately three weeks after the first mailing, a second wave mailing included another personalized cover letter encouraging them to reply, another copy of the questionnaire on colored paper, and another reply envelope. A third wave postcard was sent three weeks after the second wave mailing. Surveys returned as undeliverable were not replaced with another potential respondent.

The response rate for the mailing was 40% ($n=435$; $CI=\pm 4.68$). This return rate and sample size means that the responses in the health assessment should be representative of the entire county.

PROCEDURE | *Adolescent Survey*

The **Michigan Profile for Healthy Youth** (MiPHY) is an online student health survey offered by the Michigan Departments of Education and Health and Human Services. Youth in grades 7, 9, and 11 in Michigan School districts were used as sampling frame for the youth survey. The results of the survey reflect student responses from the middle schools and high schools that voluntarily participated in Shiawassee County and may not be representative of all middle schools or high schools in Shiawassee County.

DATA ANALYSIS

Individual responses were anonymous and confidential. Only group data are available. All data was analyzed by health education researchers at the University of Toledo using SPSS 23.0. Crosstabs were used to calculate descriptive statistics for the data presented in this report. To be representative of Shiawassee County, the adult data collected was weighted by age, gender, race, and income using 2010 census data. Multiple weightings were created based on this information to account for different types of analyses. For more information on how the weightings were created and applied, see Appendix iii.

LIMITATIONS

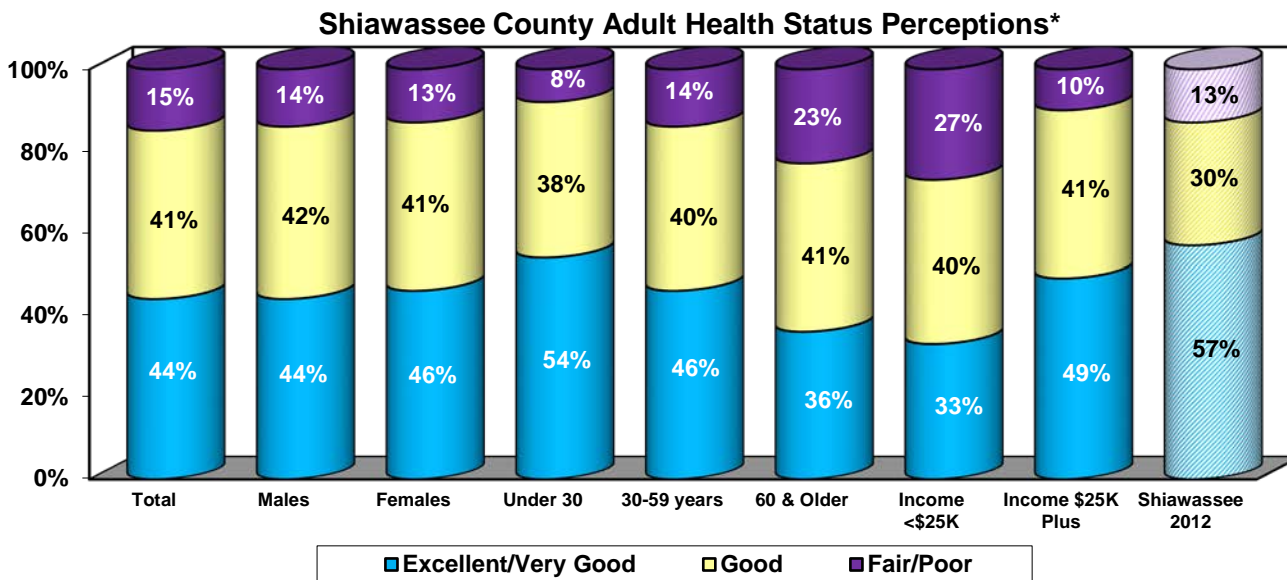
As with all county assessments, it is important to consider the findings in light of possible limitations. First, the Shiawassee County adult assessment had a high response rate. However, if any important differences existed between the respondents and the non-respondents regarding the questions asked, this would represent a threat to the external validity of the results (the generalizability of the results to the population of Shiawassee County). If there were little to no differences between respondents and non-respondents, then this would not be a limitation.

Second, it is important to note that, although several questions were asked using the same wording as the CDC questionnaires, the adult data collection method differed. CDC adult data were collected using a set of questions from the total question bank and adults were asked the questions over the telephone rather than as a mail survey.

Data Summary

HEALTH PERCEPTIONS

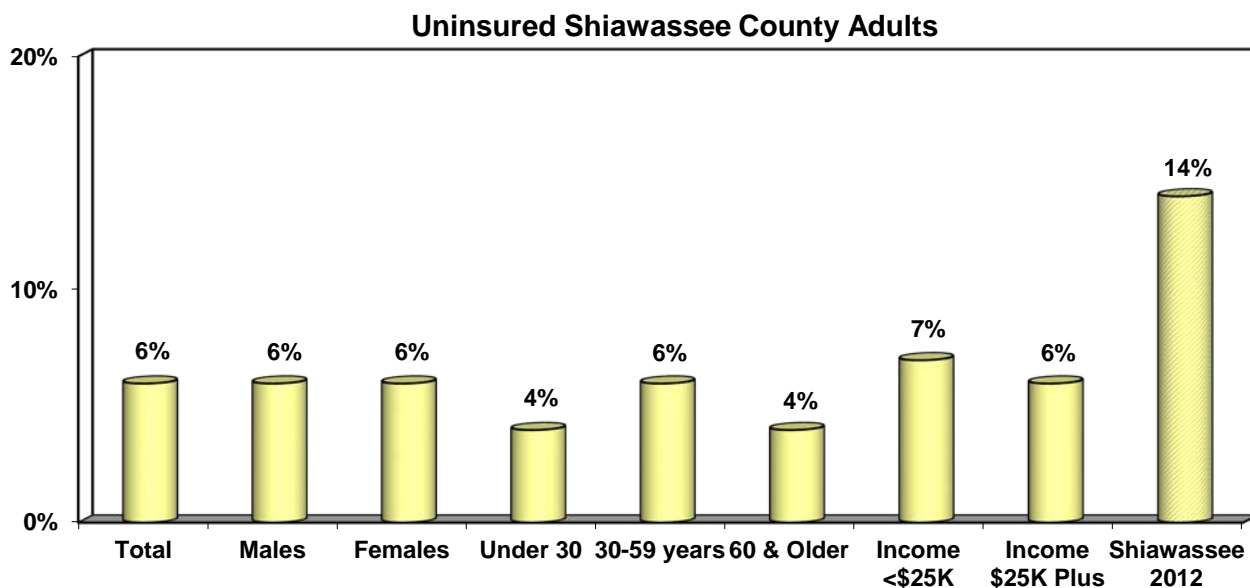
In 2016, more than two-fifths (44%) of the Shiawassee County adults rated their health status as excellent or very good. Conversely, 15% of adults, increasing to 23% of those over the age of 60, described their health as fair or poor.



*Respondents were asked: "Would you say that in general your health is excellent, very good, good, fair or poor?"

HEALTH CARE COVERAGE

The 2016 Health Assessment data has identified that 6% of Shiawassee County adults were without health care coverage. Those most likely to be uninsured were adults with an income under \$25,000. In Shiawassee County, 15.5% of residents live below the poverty level. (Source: U.S. Census, American Community Survey 5 Year Estimate, 2014)



HEALTH CARE ACCESS

The 2016 Health Assessment project identified that 70% of Shiawassee County adults had visited a doctor for a routine checkup in the past year. 74% of adults went outside of Shiawassee County for health care services in the past year.

CARDIOVASCULAR HEALTH

The 2016 Shiawassee County Health Assessment found that 4% of adults had survived a heart attack and 3% had survived a stroke at some time in their life. One-third (33%) of Shiawassee County adults had been diagnosed with high blood pressure, 43% had high blood cholesterol, 41% were obese, and 16% were smokers, four known risk factors for heart disease and stroke. Heart disease (24%) and stroke (5%) accounted for 29% of all Shiawassee County adult deaths in 2014. (Source: MDHHS, Vital Statistics).

Shiawassee County Leading Types of Death 2014

Total Deaths: 732

1. Heart Disease (24% of all deaths)
2. Cancer (22%)
3. Chronic Lower Respiratory Diseases (5%)
4. Stroke (5%)
5. Accidents, Unintentional Injuries (5%)

(Source: MDHHS, Vital Statistics,)

CANCER

Michigan Department of Health and Human Services statistics indicate that from 2010-2014, a total of 792 Shiawassee County residents died from cancer, the second leading cause of death in the county. The American Cancer Society advises that not using tobacco products, maintaining a healthy weight, adopting a physically active lifestyle, eating more fruits and vegetables, limiting alcoholic beverages and early detection may reduce overall cancer deaths.

Shiawassee County Incidence of Cancer, 2012

All Types: 387 cases

- Breast: 60 cases (16%)
- Prostate: 56 cases (14%)
- Lung and Bronchus: 55 cases (14%)
- Colon and Rectum: 40 cases (10%)

In 2014, there were 161 cancer deaths in Shiawassee County.

(Source: MDHHS, Cancer Statistics, updated: July 28, 2015)

DIABETES

In 2016, 10% of Shiawassee County adults had been diagnosed with diabetes.

ARTHRITIS

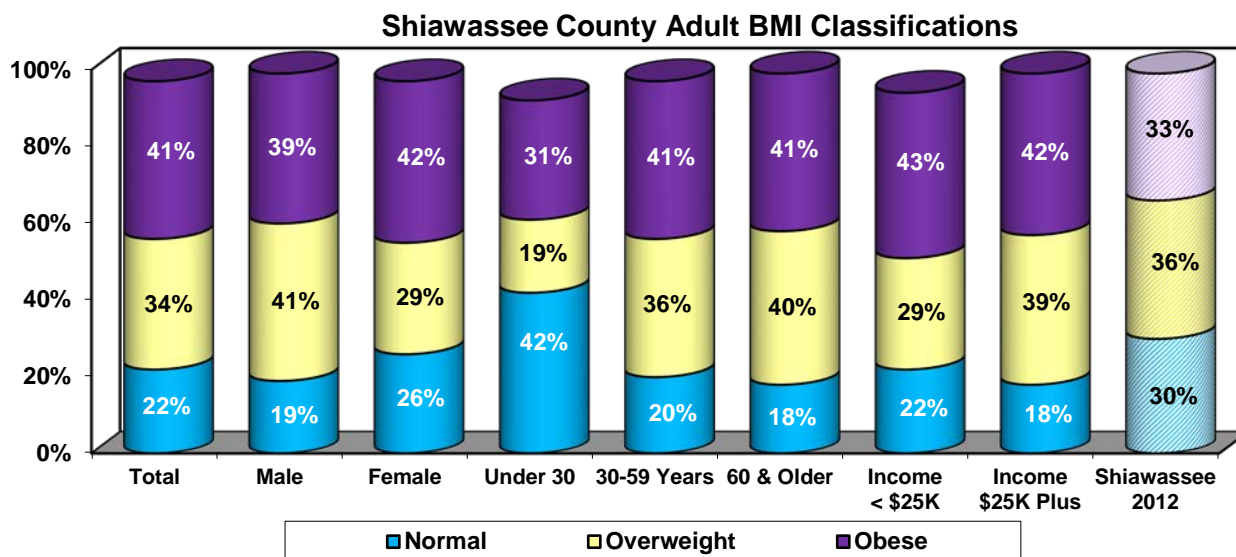
According to the Shiawassee County survey data, 36% of Shiawassee County adults were diagnosed with arthritis. According to the 2014 BRFSS, 32% of Michigan adults and 26% of U.S. adults were told they have arthritis.

ASTHMA

According to the Shiawassee County survey data, 19% of adults had been diagnosed with asthma.

ADULT WEIGHT STATUS

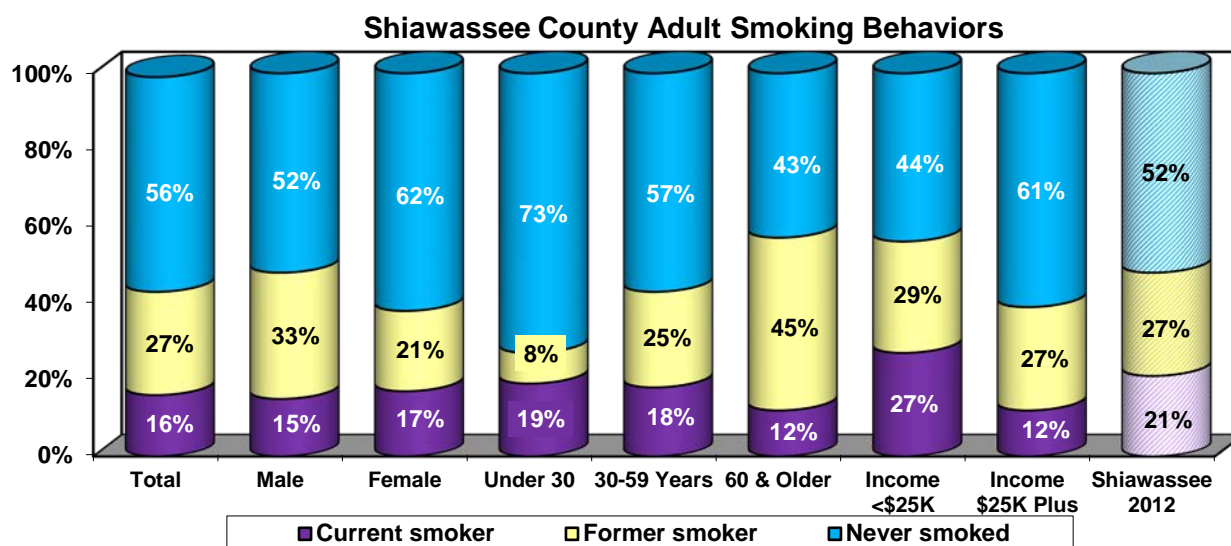
The 2016 Health Assessment identified that 75% of Shiawassee County adults were overweight or obese based on Body Mass Index (BMI). More than two-fifths (41%) of Shiawassee County adults were obese. The 2014 BRFSS indicates that 31% of Michigan and 30% of U.S. adults were obese by BMI. More than half (52%) of adults were trying to lose weight.



(Percentages may not equal 100% due to the exclusion of data for those who were classified as underweight)

ADULT TOBACCO USE

In 2016, 16% of Shiawassee County adults were current smokers and 27% were considered former smokers. In 2016, the American Cancer Society (ACS) stated that tobacco use was the most preventable cause of death worldwide, and is responsible for the deaths of approximately half of long-term users. Each year, tobacco use is responsible for almost 6 million premature deaths, 80% of which are in low-and middle-income countries, and by 2030, this number is expected to increase to 8 million (Source: Cancer Facts & Figures, American Cancer Society, 2016).



Respondents were asked:

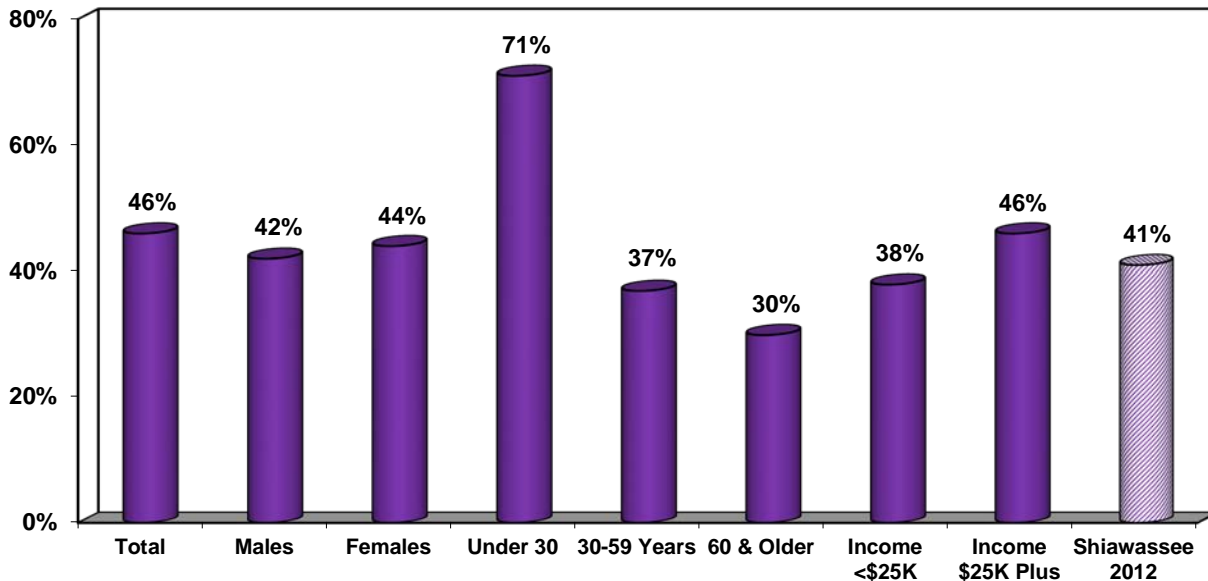
"Have you smoked at least 100 cigarettes in your entire life?"

If yes, do you now smoke cigarettes every day, some days or not at all?"

ADULT ALCOHOL CONSUMPTION

In 2016, the Health Assessment indicated that 11% of Shiawassee County adults were considered frequent drinkers (drank an average of three or more days per week, per CDC guidelines). 46% of adults who drank had five or more drinks (for males) or 4 or more drinks (for females) on one occasion (binge drinking) in the past month. Four percent of adults drove after having perhaps too much to drink.

Shiawassee County Adult Drinkers Who Binge Drank in Past Month*

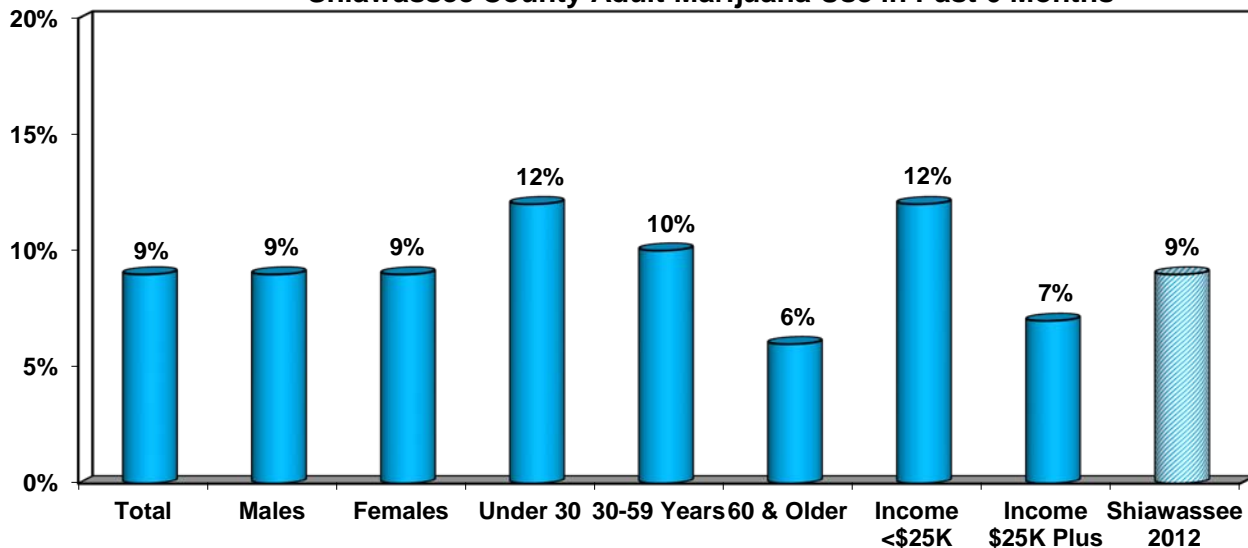


**Based on adults who have drunk alcohol in the past month. Binge drinking is defined as having five or more drinks (for males) or four or more drinks (for females) on an occasion. Adults must have reported drinking five or more drinks (for males) or four or more drinks (for females) on an occasion at least once in the previous month.*

ADULT MARIJUANA AND OTHER DRUG USE

In 2016, 9% of Shiawassee County adults had used marijuana during the past 6 months. 16% of adults had used medication not prescribed for them or took more than prescribed to feel good or high and/or more active or alert during the past 6 months.

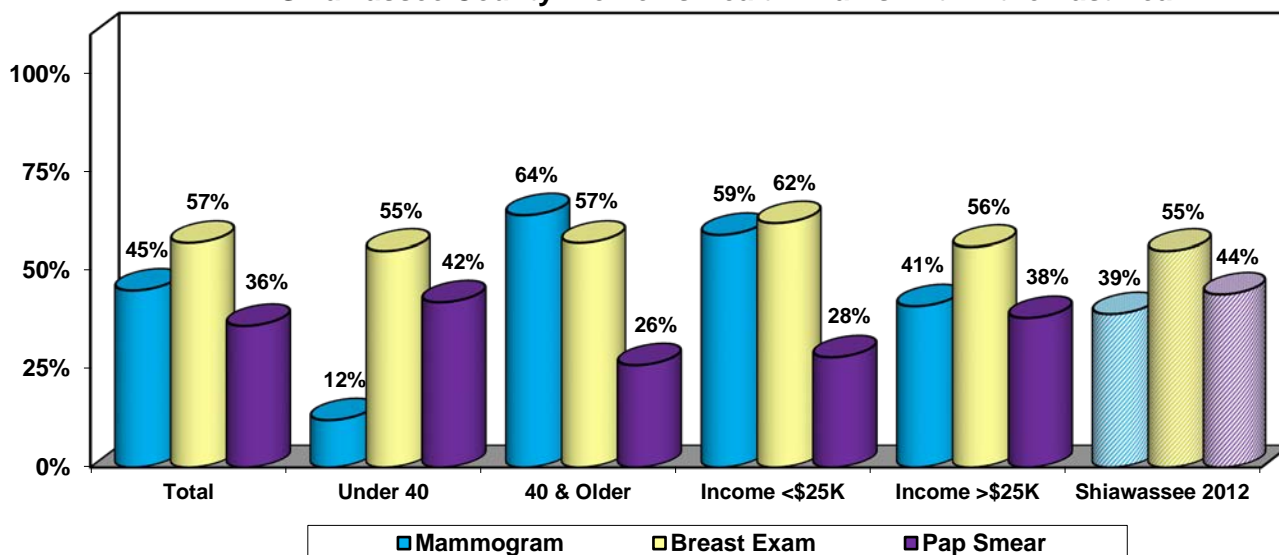
Shiawassee County Adult Marijuana Use in Past 6 Months



WOMEN'S HEALTH

In 2016, nearly two-thirds (64%) of Shiawassee County women over the age of 40 reported having a mammogram in the past year. 57% of Shiawassee County women ages 19 and over had a clinical breast exam and 36% had a Pap smear to detect cancer of the cervix in the past year. The Health Assessment determined that 2% of women survived a heart attack and 4% survived a stroke at some time in their life. Nearly one-third (31%) had high blood pressure, 38% had high blood cholesterol, 42% were obese, and 17% were identified as smokers, known risk factors for cardiovascular diseases.

Shiawassee County Women's Health Exams Within the Past Year



PREVENTIVE MEDICINE AND HEALTH SCREENINGS

Nearly three-fourths (73%) of adults ages 65 and older had a pneumonia vaccination at some time in their life. More than three-fifths (62%) of adults ages 50 and older had a colonoscopy/ sigmoidoscopy within the past 5 years.

ADULT SEXUAL BEHAVIOR & PREGNANCY OUTCOMES

In 2016, nearly two-thirds (66%) of Shiawassee County adults had sexual intercourse. Four percent of adults had more than one partner. Prevalence estimates suggest that young people aged 15-24 years acquire half of all new STDs and that 1 in 4 sexually active adolescent females have an STD, such as chlamydia or human papillomavirus (HPV) (*Source: CDC, STDs in Adolescents and Young Adults, 2014 STD Surveillance*).

QUALITY OF LIFE

In 2016, 28% of Shiawassee County adults were limited in some way because of a physical, mental or emotional problem.

SOCIAL CONTEXT

In 2016, 9% of Shiawassee County adults were abused in the past year. 54% of adults kept a firearm in or around their home.

MENTAL HEALTH AND SUICIDE

In 2016, 3% of Shiawassee County adults considered attempting suicide. 10% of adults had a period of two or more weeks when they felt so sad or hopeless nearly every day that they stopped doing usual activities.

ORAL HEALTH

The 2016, more than two-thirds (68%) of Shiawassee County adults had visited a dentist or dental clinic in the past year. The 2014 BRFSS reported that 65% of U.S. adults and 69% of Michigan adults had visited a dentist or dental clinic in the previous twelve months.

Adult | TREND SUMMARY

Adult Variables	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Health Status				
Rated health as excellent or very good	57%	44%	50%	53%
Rated general health as fair or poor	13%	15%	17%	17%
Average days that physical health not good in past month	3.1	4.2	3.6***	3.7***
Average days that mental health not good in past month	3.5	3.9	3.7***	3.5***
Health Care Coverage				
Uninsured	14%	6%	10%	13%
Arthritis, Asthma & Diabetes				
Has been diagnosed with diabetes	11%	10%	10%	10%
Has been diagnosed with asthma	16%	19%	15%	14%
Has been diagnosed with arthritis	33%	36%	32%	26%
Cardiovascular Health				
Had a heart attack	4%	4%	5%	4%
Had a stroke	2%	3%	3%	3%
Has been diagnosed with high blood pressure	29%	33%	35%*	31%*
Has been diagnosed with high blood cholesterol	37%	43%	41%*	38%*
Had blood cholesterol checked within the past 5 years	82%	82%	79%*	76%*
Alcohol Consumption				
Had at least one alcoholic beverage in past month	50%	54%	57%	53%
Binged in past month (5 or more drinks in a couple of hours on an occasion)	20%	23%	19%	16%
Tobacco Use				
Current smoker (currently smoke some or all days)	19%	16%	21%	18%
Former smoker (smoked 100 cigarettes in lifetime & now do not smoke)	24%	27%	27%	25%
Drug Use				
Adults who used marijuana in the past 6 months	9%	9%	N/A	N/A
Adults who used recreational drugs in the past 6 months	1%	4%	N/A	N/A
Adults who misused medications in the past 6 months	9%	16%	N/A	N/A
Sexual Behavior				
Had more than one sexual partner in past year	6%	4%	N/A	N/A
Preventive Medicine				
Had a pneumonia vaccine in lifetime (age 65 and older)	66%	73%	69%	70%
Had a flu vaccine in the past year (ages 65 and over)	N/A	77%	58%	61%
Had a clinical breast exam in the past two years (age 40 and older)	78%	72%	80%*	77%**
Had a mammogram in the past two years (age 40 and older)	77%	78%	76%	73%
Had a pap smear in the past three years	79%	66%	75%	75%
Weight Status				
Obese	33%	41%	31%	30%
Overweight	36%	34%	35%	35%
Quality of Life				
Limited in some way because of physical, mental or emotional problem	24%	28%	23%	20%
Oral Health				
Adults who have visited the dentist in the past year	65%	68%	69%	65%
Adults who have had one or more permanent teeth removed	39%	40%	43%	43%

N/A- not available

*2013 BRFSS Data, **2012 BRFSS Data, *** 2010 BFRSS Data

TREND SUMMARY

Youth | MiPHY SUMMARY

The **Michigan Profile for Healthy Youth** (MiPHY) is an online student health survey offered by the Michigan Departments of Education and Health and Human Services. Youth in grades 7, 9, and 11 in Michigan School districts were used as sampling frame for the youth survey. The results in this report reflect student survey responses from schools that voluntarily participated in your county and may not be representative of all middle and high school students in the county.

MiPHY Variables	Shiawassee County 2015-2016 (7 th grade)	Shiawassee County 2015-2016 (9 th and 11 th grade)	Michigan YRBS 2015 (9 th -12 th)
Weight Status and Nutrition			
Obese	16%	21%	14%
Overweight	14%	18%	16%
Described themselves as slightly or very overweight	29%	37%	33%
Trying to lose weight	49%	49%	48%
Ate 5 or more servings per day of fruits and vegetables in the past week	32%	25%	N/A
Drank three or more glasses of milk per day during the past week	20%	15%	N/A
Drank pop or soda one or more times per day during the past week	25%	26%	19%
Ate breakfast every day during the past week	36%	32%	33%
Did not eat breakfast in the past week	14%	11%	17%
Physical Activity			
Physically active at least 60 minutes per day on 5 or more days in past week	65%	60%	46%
Attended physical education (PE) classes on one or more days in an average week when in school	65%	58%	32%
Youth who play on any sports team	69%	62%	N/A
Watched TV 3 or more hours per day	25%	21%	22%
Played video or computer games or use a computer, not for school work for 3 or more hours per day on average school day	34%	36%	41%
Alcohol and Other Drugs			
Ever drank alcohol	N/A	49%	59%
Drank alcohol during the past month	7%	28%	26%
Had 5 or more drinks of alcohol in a row, that is, within a couple of hours, during the past month (of all youth)	3%	17%	13%
Rode with someone who was drinking	24%	N/A	20%*
Drank and drove (of youth drivers)	N/A	4%	6%*
Obtained the alcohol they drank by someone giving it to them	30%	36%	38%
Used marijuana in the past month	2%	18%	19%
Used inhalants to get high during the past month	3%	3%	N/A
Took a prescription drug such as Ritalin, Adderall, or Xanax without a doctor's prescription during the past month	3%	7%	N/A
Took painkillers such as OxyContin, Codeine, Vicodin, or Percocet without a doctor's prescription during the past month	5%	8%	N/A

N/A – Not available

*2013 YRBSS Data

MiPHY Variables	Shiawassee County 2015-2016 (7 th grade)	Shiawassee County 2015-2016 (9 th and 11 th grade)	Michigan YRBS 2015
Tobacco Use			
Ever smoked a cigarette	N/A	22%	33%
Smoked cigarettes during the past month	3%	9%	10%
Smoked cigarettes on 20 or more days during the past month (of all youth)	<1%	3%	3%
Exposed to second hand smoke in the past week	48%	58%	N/A
Had been told they had asthma and still have asthma	57%	57%	N/A
Youth who used an electronic vapor product during the past month	7%	19%	23%
Unintentional Injuries and Violence			
Carried a weapon in the past month	N/A	25%	17%
Carried a weapon on school property in the past month	N/A	4%	4%
Had been in a physical fight in the past year	N/A	20%	20%
Had been in a physical fight on school property in the past year	N/A	10%	7%
Threatened or injured with a weapon on school property in past year	N/A	10%	7%
Did not go to school because felt unsafe in the past month	14%	5%	6%
Electronically/cyber bullied in past year	27%	23%	19%
Bullied on school property in past year	46%	32%	26%
Never or rarely wore a seatbelt when riding in a car driven by someone else	5%	11%	7%
Texted or emailed while driving a car in the past month	N/A	38%	39%
Mental Health			
Youth who felt sad or hopeless almost every day for 2 or more weeks in a row	17%	36%	32%
Youth who had seriously considered attempting suicide in the past year	N/A	19%	17%
Had made a plan to attempt suicide in the past year	N/A	16%	15%
Attempted suicide in the past year	N/A	9%	9%
Suicide attempt resulted in an injury, poisoning, or overdoses that had to be treated by a doctor or nurse in the past year	4%	3%	3%
Sexual Behavior			
Ever had sexual intercourse	8%	29%	36%
Had four or more sexual partners (of all youth)	N/A	4%	9%
Had sexual intercourse before age 13 (of all youth)	N/A	1%	3%
Individual and Peer Domain			
Youth who reported smoking one or more packs of cigarettes per day to be a moderate or great risk	77%	82%	N/A
Youth who reported having five or more drinks of alcohol once or twice a weekend to be a moderate or great risk	64%	66%	N/A
Youth who reported they thought none of their friends had smoked cigarettes recently	81%	50%	N/A
Youth who reported they thought none of their friends had been drunk recently	83%	42%	N/A
Youth who reported they thought none of their friends had used marijuana recently	83%	37%	N/A

N/A – Not available

MiPHY Variables	Shiawassee County 2015-2016 (7 th grade)	Shiawassee County 2015-2016 (9 th and 11 th grade)	Michigan YRBS 2015
Family Domain			
Youth who reported their parents felt cigarette use to be wrong or very wrong	98%	96%	N/A
Youth who reported their parents felt marijuana use to be wrong or very wrong	95%	87%	N/A
Youth whose parents ask whether their homework is done	19%	25%	N/A
Youth who could ask their mom or dad for help with personal problems	76%	76%	N/A
School Domain			
Felt unsafe or very unsafe at school	12%	10%	N/A
Felt assigned school work was never or seldom meaningful and important	24%	33%	N/A
Youth who often or almost always hated being at school during the past year	50%	51%	N/A
Youth who never or seldom tried to do their best work at school during the past year	8%	10%	N/A
Youth who reported not at all or a little true that they do interesting activities at school	55%	62%	N/A
Youth who reported not at all or a little true that they make a difference at school	63%	74%	N/A
Had seen students get pushed, hit, or punched one or more times during the past year	75%	61%	N/A
Heard students get called mean names or get "put down" during the past year	86%	78%	N/A
Heard rumors or lies being spread about other students during the past year	87%	80%	N/A
Have seen students left out of activities or games on purpose during the past year	71%	57%	N/A
Heard students threaten to hurt other students during the past year	68%	64%	N/A
Have seen students wreck or damage other students' things during the past year	64%	50%	N/A
Have read email or website messages that spread rumors about other students during the past year	34%	38%	N/A
Have read email or website messages that contained threats to other students during the past year	28%	25%	N/A
Have lots of chances to get involved in sports, clubs, and other school activities outside of class	83%	87%	N/A
Teachers notice when they are doing a good job and let them know about it	57%	50%	N/A
Teachers praise them when they work hard in school	45%	38%	N/A
Community Domain			
Felt unsafe or very unsafe in their neighborhood	4%	5%	N/A
Youth who reported sort of easy or very easy to get cigarettes	28%	51%	N/A
Youth who reported sort of easy or very easy to get alcohol	32%	65%	N/A
Youth who reported sort of easy or very easy to get marijuana	16%	49%	N/A
Know adults in the neighborhood they could talk to about something important	49%	51%	N/A
Neighbors notice when they are doing a good job and let them know	28%	24%	N/A
Know people in their neighborhood who encourage them to do their best	43%	41%	N/A
Know people in their neighborhood who are proud when youth do something well	40%	41%	N/A

N/A – Not available

Adult | HEALTH STATUS PERCEPTIONS

Key Findings

In 2016, more than two-fifths (44%) of the Shiawassee County adults rated their health status as excellent or very good. Conversely, 15% of adults, increasing to 23% of those over the age of 60, described their health as fair or poor.

Adults Who Rated General Health Status Excellent or Very Good

- Shiawassee County 44% (2016)
- Michigan 50% (2014)
- U.S. 53% (2014)

(Source: BRFSS 2014 for Michigan and U.S.)

General Health Status

- In 2016, more than two-fifths (44%) of Shiawassee County adults rated their health as excellent or very good. Shiawassee County adults with higher incomes (49%) were most likely to rate their health as excellent or very good, compared to 33% of those with incomes less than \$25,000.
- 15% of adults rated their health as fair or poor. The 2014 BRFSS has identified that 17% of Michigan and 17% of U.S. adults self-reported their health as fair or poor.
- Shiawassee County adults were most likely to rate their health as fair or poor if they:
 - Had been diagnosed with diabetes (39%)
 - Had an annual household income under \$25,000 (27%)
 - Had high blood pressure (25%) or high blood cholesterol (21%)
 - Were divorced (24%)
 - Were 60 years of age or older (23%)

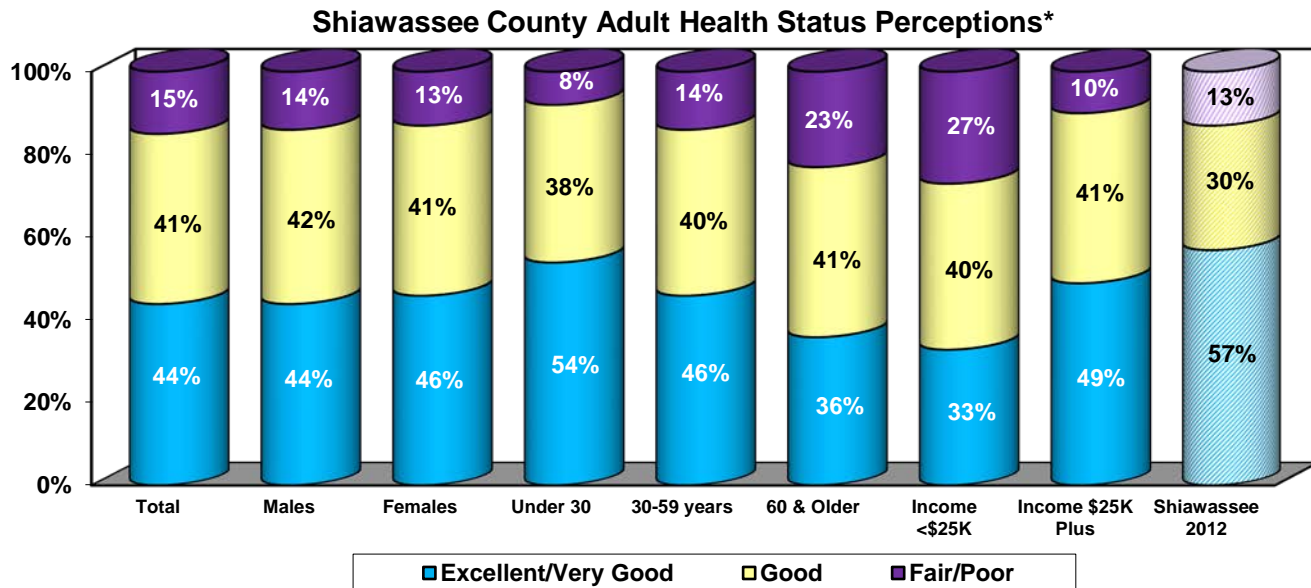
Physical Health Status

- In 2016, 25% of Shiawassee County adults rated their physical health as not good on four or more days in the previous month.
- Shiawassee County adults reported their physical health as not good on an average of 4.2 days in the previous month. Michigan and U.S. adults reported their physical health as not good on an average of 3.6 days and 3.7 days, respectively, in the previous month *(Source: 2010 BRFSS)*.
- Shiawassee County adults were most likely to rate their physical health as not good if they:
 - Were over the age of 60 (33%)
 - Had annual household incomes less than \$25,000 (33%)

Mental Health Status

- In 2016, 25% of Shiawassee County adults rated their mental health as not good on four or more days in the previous month.
- Shiawassee County adults reported their mental health as not good on an average of 3.9 days in the previous month. Michigan and U.S. adults reported their mental health as not good on an average of 3.7 days and 3.5 days, respectively, in the previous month *(Source: 2010 BRFSS)*.
- More than one-fourth (28%) adults reported that poor mental or physical health kept them from doing usual activities such as self-care, work, or recreation.
- Shiawassee County adults were most likely to rate their mental health as not good if they:
 - Had annual household income less than \$25,000 (37%)
 - Were female (32%)

The following graph shows the percentage of Shiawassee County adults who described their personal health status as excellent/very good, good, and fair/poor. Examples of how to interpret the information include: 44% of all Shiawassee County adults, 54% of those under age 30, and 36% of those ages 60 and older rated their health as excellent or very good. The table shows the percentage of adults with poor physical and mental health in the past 30 days.



*Respondents were asked: "Would you say that in general your health is excellent, very good, good, fair or poor?"

Health Status	No Days	1-3 Days	4-5 Days	6-7 Days	8 or More Days
Physical Health Not Good in Past 30 Days*					
Males	67%	9%	6%	3%	12%
Females	49%	14%	9%	1%	18%
Total	57%	12%	7%	2%	16%
Mental Health Not Good in Past 30 Days*					
Males	74%	4%	3%	0%	13%
Females	55%	9%	6%	2%	22%
Total	63%	7%	4%	1%	17%

*Totals may not equal 100% as some respondents answered "Don't know/Not sure".

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Rated health as excellent or very good	57%	44%	50%	53%
Rated health as fair or poor	13%	15%	17%	17%
Average days that physical health not good in past month	3.1	4.2	3.6*	3.7*
Average days that mental health not good in past month	3.5	3.9	3.7*	3.5*

*2010 BRFSS data

Adult | HEALTH CARE COVERAGE

Key Findings

The 2016 Health Assessment data has identified that 6% of Shiawassee County adults were without health care coverage. Those most likely to be uninsured were adults with an income level under \$25,000. In Shiawassee County, 16% of residents live below the poverty level. (Source: U.S. Census, American Community Survey 5 Year Estimate, 2014)

General Health Coverage

- In 2016, 94% of Shiawassee County adults had health care coverage, leaving 6% who were uninsured. The 2014 BRFSS reports uninsured prevalence rates for Michigan (10%) and the U.S. (13%).
- In the past year, 6% of adults were uninsured, increasing to 7% of those with incomes less than \$25,000.
- The following types of health care coverage were used: employer (40%), someone else's employer (16%), multiple-including private sources (13%), Medicaid or medical assistance (8%), Medicare (8%), multiple-including government sources (5%), Health Insurance Marketplace (4%), self-paid plan (2%), military, CHAMPUS, TriCare, or VA (1%), and some other source (2%).

6% of Shiawassee County adults were uninsured.

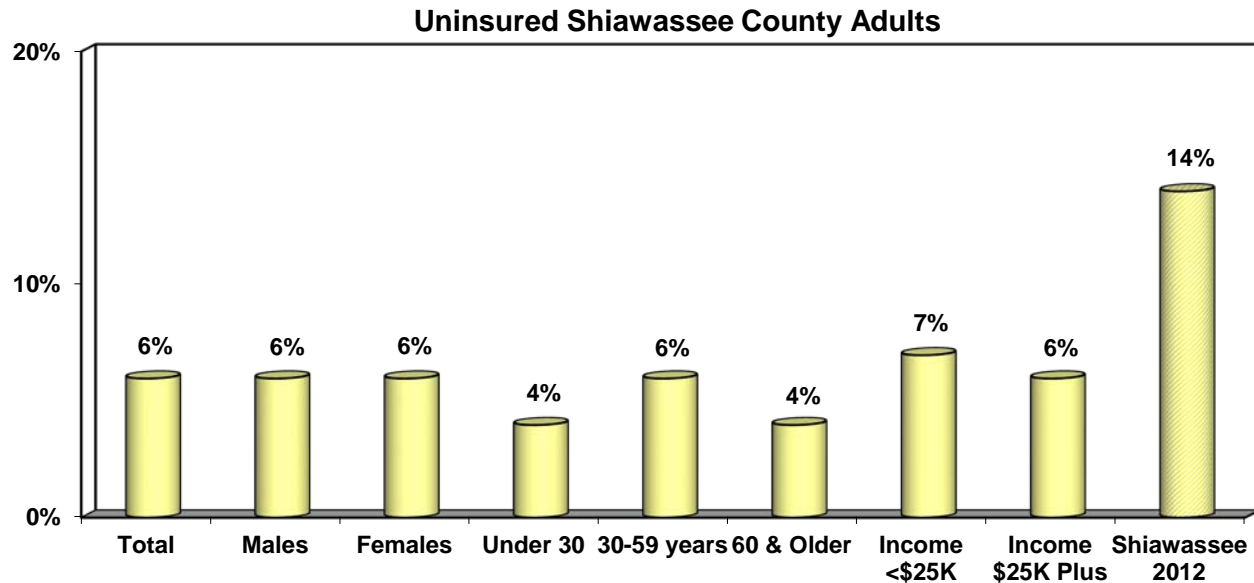
- Shiawassee County adult health care coverage includes the following: medical (99%), prescription coverage (93%), immunizations (79%), dental (73%), Shiawassee County physicians (73%), Shiawassee County facilities (72%), preventive health (68%), vision (68%), their spouse (65%), outpatient therapy (60%), mental health (56%), their children (48%), mental health counseling (45%), alcohol and drug treatment (30%), home care (29%), their partner (27%), skilled nursing (27%), hospice (26%), long-term care (26%), assisted living (6%), and transportation (6%).
- The top reasons uninsured adults gave for being without health care coverage were:
 - They lost their job or changed employers (27%)
 - They could not afford to pay the insurance premiums (27%)
 - They could not afford to pay the exchange premiums (11%)
 - They lost Medicaid eligibility (9%)
 - Their employer does not/stopped offering coverage (7%)

(Percentages do not equal 100% because respondents could select more than one reason)

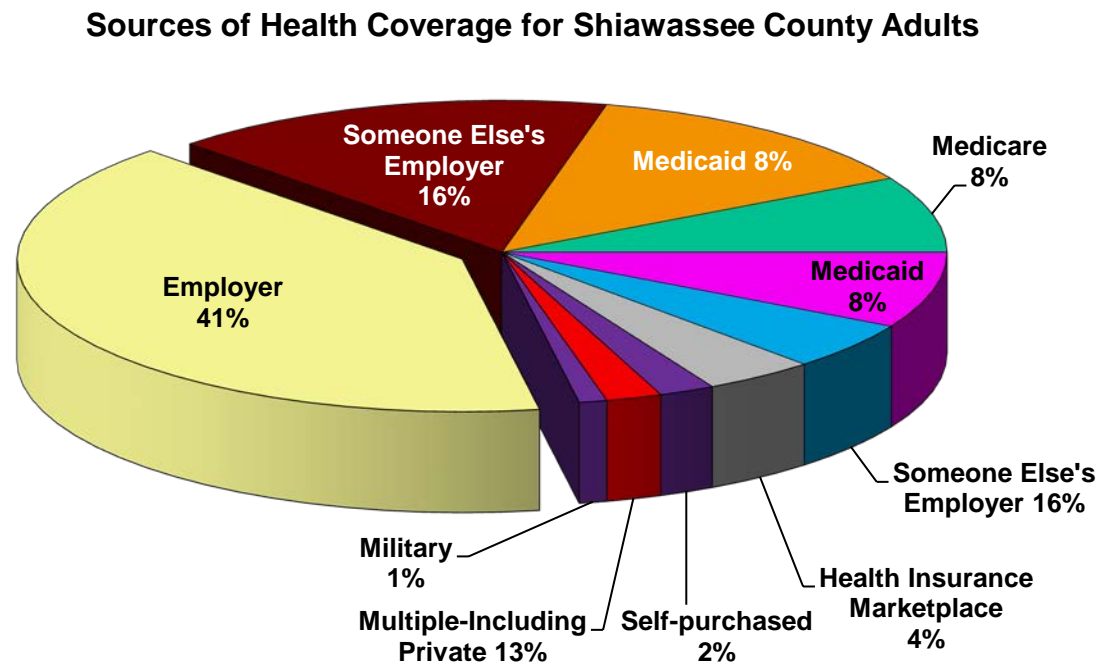
Shiawassee County Medicaid Health Plan Enrollees		
	Residents Enrolled in Medicaid	Health Plans of Enrollees
Shiawassee County January 2015	10,962	HealthPlus Partners, Inc McLaren Health Plan Meridan Health Plan of Michigan UnitedHealthcare Community Plan, Inc
Shiawassee County February 2015	11,334	HealthPlus Partners, Inc McLaren Health Plan Meridan Health Plan of Michigan UnitedHealthcare Community Plan, Inc

(Source: Michigan Department of Community Health, Medicaid Health Plan Enrollees, 2015, from: http://www.michigan.gov/documents/mdch/JE02022015_481584_7.pdf)

The following graph shows the percentages of Shiawassee County adults who were uninsured by demographic characteristics. Examples of how to interpret the information in the graph includes: 6% of all Shiawassee County adults were uninsured, 7% of adults with an income less than \$25,000 reported being uninsured and 4% of those under age 30 lacked health care coverage. The pie chart shows sources of Shiawassee County adults' health care coverage.



7% of Shiawassee County adults with incomes less than \$25,000 were uninsured.



Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Uninsured	14%	6%	10%	13%

The following chart shows what is included in Shiawassee County adults' insurance coverage.

Health Coverage Includes:	Yes	No	Don't Know
Medical	99%	<1%	1%
Prescription Coverage	93%	3%	3%
Immunizations	79%	4%	17%
Dental	73%	22%	5%
Shiawassee County Physicians	73%	3%	24%
Shiawassee County Facilities	72%	3%	25%
Preventive Health	68%	3%	29%
Vision	68%	26%	6%
Their Spouse	65%	21%	14%
Outpatient Therapy	60%	2%	38%
Mental Health	56%	6%	38%
Their Children	48%	36%	16%
Mental Health Counseling	45%	5%	50%
Alcohol and Drug Treatment	30%	6%	64%
Home Care	29%	6%	65%
Their Partner	27%	37%	36%
Skilled Nursing	27%	6%	67%
Hospice	26%	5%	69%
Long-term Care	26%	14%	60%
Assisted Living	6%	19%	75%
Transportation	6%	26%	68%

Healthy People 2020 Access to Health Services (AHS)

Objective	Shiawassee County 2016	Michigan 2014	U.S. 2013**	Healthy People 2020 Target
AHS-1.1: Persons under age of 65 years with health care insurance	94% age 20-24 95% age 25-34 92% age 35-44 94% age 45-54 94% age 55-64	86% age 18-24 82% age 25-34 86% age 35-44 89% age 45-54 91% age 55-64	76% age 18-24 74% age 25-34 80% age 35-44 84% age 45-54 87% age 55-64	100%

*U.S. baseline is age-adjusted to the 2000 population standard

(Sources: Healthy People 2020 Objectives, 2014 BRFSS, 2016 Shiawassee County Health Assessment)

**2013 BRFSS Data. The 2014 U.S. BRFSS is not able to be broken down by age

Adult | HEALTH CARE ACCESS AND UTILIZATION

Key Findings

The 2016 Health Assessment project identified that 70% of Shiawassee County adults had visited a doctor for a routine checkup in the past year. 74% of adults went outside of Shiawassee County for health care services in the past year.

Health Care Access

- More than two-thirds (70%) of Shiawassee County adults visited a doctor for a routine checkup in the past year, increasing to 86% of those over the age of 60.
- Adults with health care coverage were more likely to have visited a doctor for a routine checkup in the past year (73%), compared to 40% of those without health care coverage.
- Three-fifths (60%) of Shiawassee County adults reported they had one person they thought of as their personal doctor or healthcare provider. 25% of adults had more than one person they thought of as their personal healthcare provider, and 15% did not have one at all.
- The following might prevent Shiawassee County adults from seeing a doctor if they were sick, injured, or needed some kind of health care: cost (31%), could not get time off work (13%), difficult to get an appointment (13%), doctor would not take their insurance (13%), hours not convenient (12%), worried they might find something wrong (11%), frightened of the procedure or doctor (8%), do not trust or believe doctors (5%), difficult to find/no transportation (3%), no childcare (2%), discrimination (<1%), and some other reason (1%).
- Shiawassee County adults did not get the following major or preventive care because of cost: medication (8%), mammogram (7%), colonoscopy (6%), lab testing (6%), pap smear (6%), immunizations (4%), weight loss program (4%), mental health services (3%), PSA test (3%), surgery (3%), smoking cessation (2%), and family planning services (1%).
- 74% of adults went outside of Shiawassee County for the following health care services in the past year: primary care (31%), specialty care (30%), vision services (22%), dental services (20%), obstetrics/ gynecology/NICU (10%), orthopedic care (7%), cardiac care (7%), counseling services (5%), pediatric care (5%), cancer care (4%), mental health care (3%), pediatric therapies (2%), addiction services (<1%), developmental disability services (<1%), hospice (<1%), and other services (9%).
- Adults went outside of Shiawassee County for health care services for the following reasons: better quality program (15%), did not like local services/providers (13%), used to live there (13%), service not locally available (8%), work there (8%), insurance restrictions (7%), word of mouth (6%), bad experience locally (5%), confidentiality/anonymity (2%), inconvenient hours (2%), long waitlist (1%), and other reasons (13%).
- Adults usually visited the following places for health care services: doctor's office (54%), Internet (5%), urgent care center (5%), family and friends (2%), Department of Veteran's Affairs (1%), hospital emergency room (<1%), in-store health clinic (<1%), public health clinic or community health department (<1%), walk-in health center (<1%), and some other kind of place (<1%). 27% of adults reported multiple places and 3% had no usual place for health care services.

- Shiawassee County adults had the following problems when they needed health care in the past year: could not get appointments when they wanted them (7%), did not have enough money to pay for health care or insurance (7%), had to change doctors because of their healthcare plan (5%), could not find a doctor they were comfortable with (4%), could not get time off work (4%), too busy to get the healthcare they needed (4%), did not have insurance (4%), too embarrassed to seek help (3%), could not find a doctor to take them as a patient (1%), did not have child care (1%), did not have someone to watch their parent or senior family member (1%), did not get health services because they were concerned about their confidentiality (1%), did not have transportation (1%), healthcare plan did not allow them to see doctors in Shiawassee County (1%), did not get health services because of discrimination (<1%), and other problems that prevented them from getting health care (2%).
- Shiawassee County adults had the following issues regarding their healthcare coverage: deductibles were too high (27%), co-pays were too high (20%), premiums were too high (18%), could not understand their insurance plan (9%), difficulty navigating the Marketplace (6%), opted out of certain coverage because they could not afford it (5%), working with their insurance company (5%), high HSA account deductible (4%), provider/facility no longer covered (4%), service not deemed medically necessary (4%), service no longer covered (3%), limited visits (2%), mental health services limited/not covered (2%), opted out of certain coverage because they did not need it (2%).
- Shiawassee County adults had the following transportation issues when they needed health services: could not afford gas (3%), no car (3%), did not feel safe to drive (2%), disabled (2%), car did not work (1%), limited public transportation available or accessible (1%), no car insurance (1%), no driver's license (1%), no public transportation available or accessible (<1%), no transportation before or after 8 a.m.- 4:30 p.m. (<1%), and other car issues/expenses (1%).
- Nearly one-third (31%) of adults did not get their prescriptions from their doctor filled in the past year, increasing to 42% of those without prescription health coverage.
- Those who did not get their prescriptions filled gave the following reasons: no prescriptions to be filled (37%), they did not think they needed it (23%), they could not afford the out-of-pocket expense (21%), their co-pays were too high (14%), their deductibles were too high (8%), they stretched their current prescription by taking less than prescribed (8%), side effects (7%), there was no generic equivalent (7%), they did not have insurance (7%), they were taking too many medications (4%), opted out of prescription coverage because they could not afford it (3%), their premiums were too high (3%), and they had a high HSA account deductible (3%).

Availability of Services

- 7% of Shiawassee County adults had looked for a program to assist in care for the elderly (either in-home or out-of-home) for either themselves or a loved one. Of those who looked, 18% looked for an assisted living program, 18% looked for in-home care, and 7% looked for a disabled adult program. 57% looked for multiple types of elderly or disabled adult programs.
- Shiawassee County adults reported they had looked for the following programs for themselves or a loved one: depression, anxiety or mental health (21%), weight problems (10%), disability (7%), marital/family problems (7%), alcohol abuse (3%), end-of-life/hospice care (3%), smoking cessation (3%), drug abuse (2%), and gambling abuse (1%).

Shiawassee County Adults Able to Access Assistance Programs/Services

Types of Programs (% of all adults who looked for the programs)	Shiawassee County adults who have looked but have <u>NOT</u> found a specific program	Shiawassee County adults who have looked and have found a specific program
Depression or Anxiety (21% of all adults looked)	24%	76%
Weight Problems (10% of all adults looked)	35%	65%
Disability (7% of all adults looked)	22%	78%
Marital/Family Problems (7% of all adults looked)	32%	68%
Alcohol Abuse (3% of all adults looked)	27%	73%
End-of-Life/Hospice Care (3% of all adults looked)	38%	62%
Smoking Cessation (3% of all adults looked)	38%	62%
Drug Abuse (2% of all adults looked)	22%	78%
Gambling Abuse (1% of all adults looked)	0%	100%

Healthy People 2020

Access to Quality Health Services (AQHS)

Objective	Shiawassee County 2016	Healthy People 2020 Target
AHS-5.1: Persons who report a usual primary care provider	60%	95%

(Sources: Healthy People 2020 Objectives, 2016 Shiawassee County Health Assessment)

Health Care Access among Employed and Unemployed Adults

5.3% of U.S. adults failed to obtain needed medical care due to cost.

The unemployed were less likely to receive needed prescriptions due to cost than the employed in all insurance categories.

87.9% of U.S. adults had a usual place to go for medical care.

(Source: CDC, Access to Health Care, 2016,
http://www.cdc.gov/nchs/fastats/access_to_health_care.htm)

Adult | CARDIOVASCULAR HEALTH

Key Findings

The 2016 Shiawassee County Health Assessment found that 4% of adults had survived a heart attack and 3% had survived a stroke at some time in their life. One-third (33%) of Shiawassee County adults had been diagnosed with high blood pressure, 43% had high blood cholesterol, 41% were obese, and 16% were smokers, four known risk factors for heart disease and stroke. Heart disease (24%) and stroke (5%) accounted for 29% of all Shiawassee County adult deaths in 2014 (Source: MDHHS, Vital Statistics).

Heart Disease and Stroke

- In 2016, 4% of Shiawassee County adults reported they had survived a heart attack or myocardial infarction, increasing to 11% of those over the age of 60.
- 5% of Michigan and 4% of U.S. adults reported they had survived a heart attack or myocardial infarction in 2014 (Source: 2014 BRFSS).
- 3% of Shiawassee County adults reported they had survived a stroke, increasing to 6% of those over the age of 60.
- 3% of Michigan and 3% of U.S. adults reported having survived a stroke in 2014 (Source: 2014 BRFSS).
- 4% of adults reported they had angina or coronary heart disease, increasing to 11% of those over the age of 60.
- 5% of Michigan and 4% of U.S. adults reported having had angina or coronary heart disease in 2014 (Source: 2014 BRFSS).
- 2% of adults reported they had congestive heart failure, increasing to 8% of those over the age of 60.

High Blood Pressure (Hypertension)

- One-third (33%) of adults had been diagnosed with high blood pressure. The 2013 BRFSS reports hypertension prevalence rates of 35% for Michigan and 31% for the U.S.
- 7% of adults were told they were pre-hypertensive/borderline high.
- 89% of adults had their blood pressure checked within the past year.
- Shiawassee County adults diagnosed with high blood pressure were more likely to:
 - Have been age 60 years or older (57%)
 - Have rated their overall health as fair or poor (57%)
 - Have been classified as obese by Body Mass Index-BMI (46%)
 - Have incomes less than \$25,000 (45%)

Shiawassee County Leading Types of Death 2014

Total Deaths: 732

1. Heart Disease (24% of all deaths)
2. Cancer (22%)
3. Chronic Lower Respiratory Diseases (5%)
4. Stroke (5%)
5. Accidents, Unintentional Injuries (5%)

(Source: MDHHS, Vital Statistics,)

Michigan Leading Types of Death 2014

Total Deaths: 93,529

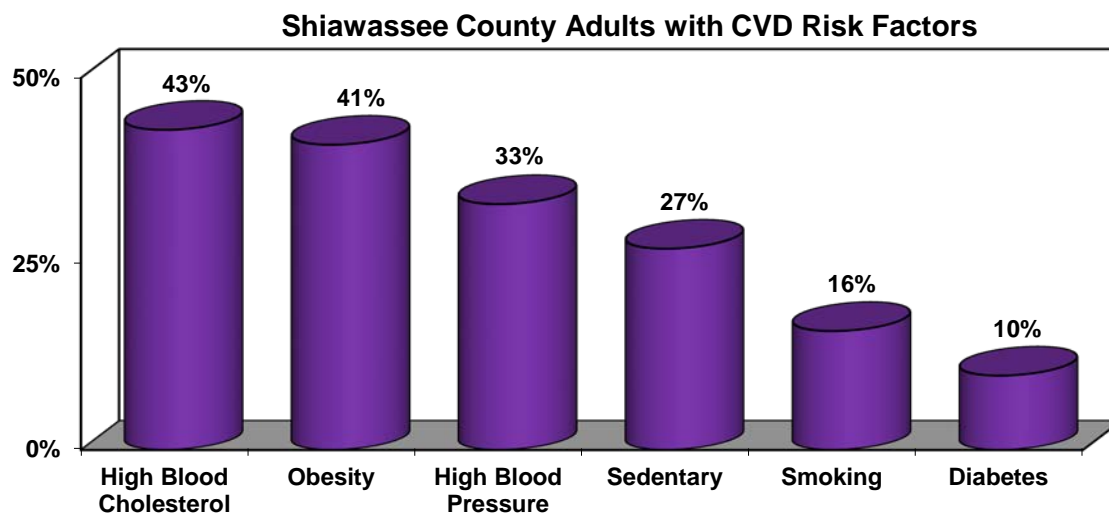
1. Heart Disease (26% of all deaths)
2. Cancers (23%)
3. Chronic Lower Respiratory Diseases (6%)
4. Stroke (5%)
5. Accidents, Unintentional Injuries (5%)

(Source: MDHHS, Vital Statistics,)

High Blood Cholesterol

- More than two-fifths (43%) of adults had been diagnosed with high blood cholesterol. The 2013 BRFSS reported that 41% of Michigan adults and 38% of U.S. adults have been told they have high blood cholesterol.
- More than four-fifths (82%) of adults had their blood cholesterol checked within the past 5 years. The 2013 BRFSS reported 79% of Michigan and 76% of U.S. adults had their blood cholesterol checked within the past 5 years.
- Shiawassee County adults with high blood cholesterol were more likely to:
 - Have been age 60 years or older (62%)
 - Have rated their overall health as fair or poor (61%)
 - Have incomes less than \$25,000 (54%)
 - Have been classified as obese by Body Mass Index-BMI (49%)

The following graph demonstrates the percentage of Shiawassee County adults who had major risk factors for developing cardiovascular disease (CVD).

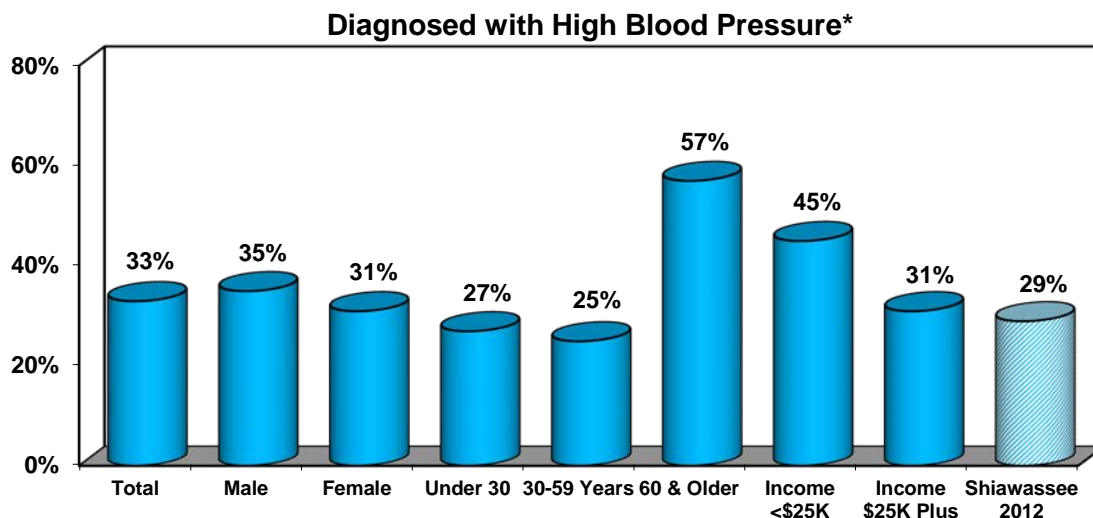


(Source: 2016 Shiawassee County Health Assessment)

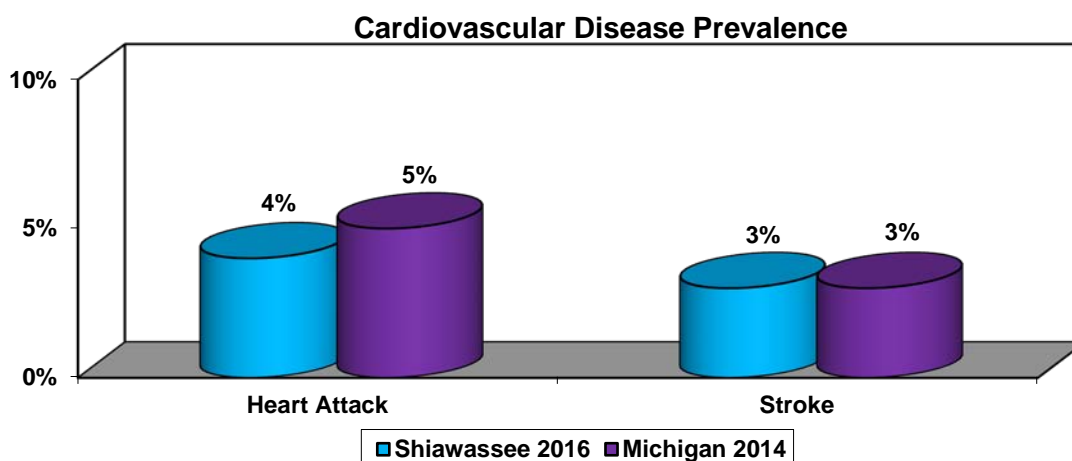
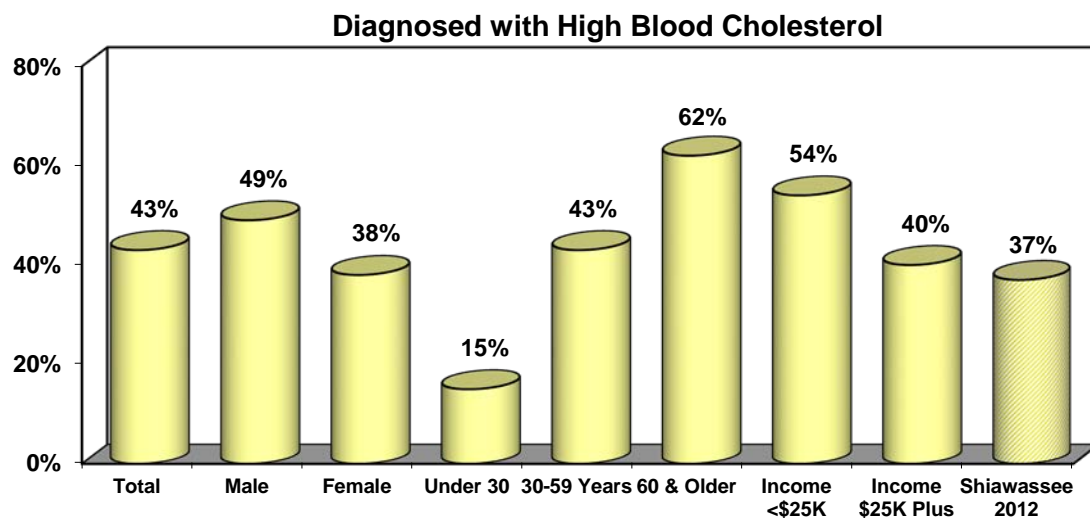
Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Had angina	5%	4%	5%	4%
Had a heart attack	4%	4%	5%	4%
Had a stroke	2%	3%	3%	3%
Had high blood pressure	29%	33%	35%*	31%*
Had high blood cholesterol	37%	43%	41%*	38%*
Had blood cholesterol checked within past 5 years	82%	82%	79%*	76%*

*2013 BRFSS Data

The following graphs show the number of Shiawassee County adults who have been diagnosed with high blood pressure, high blood cholesterol and cardiovascular disease prevalence. Examples of how to interpret the information on the first graph include: 33% of all Shiawassee County adults have been diagnosed with high blood pressure, 35% of all Shiawassee County males, 31% of all females, and 57% of those 60 years and older.



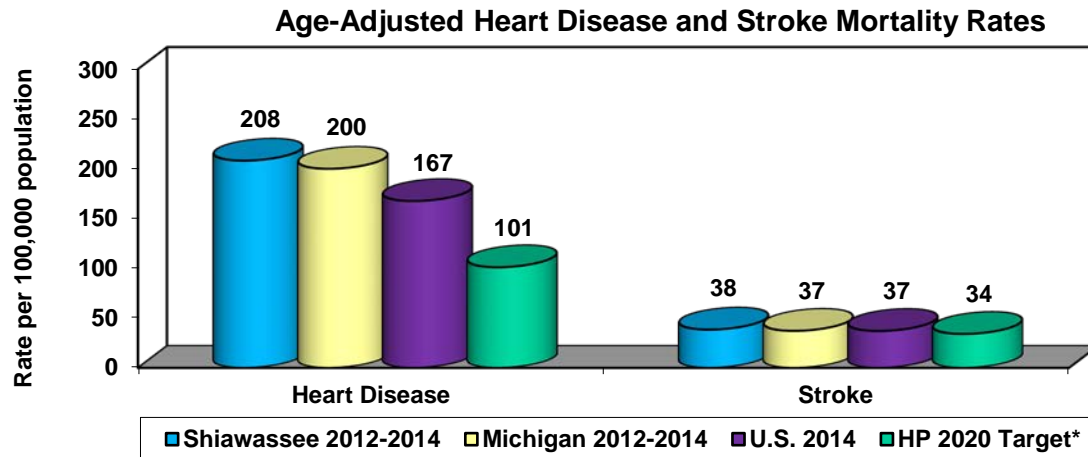
*Does not include respondents who indicated high blood pressure during pregnancy only.



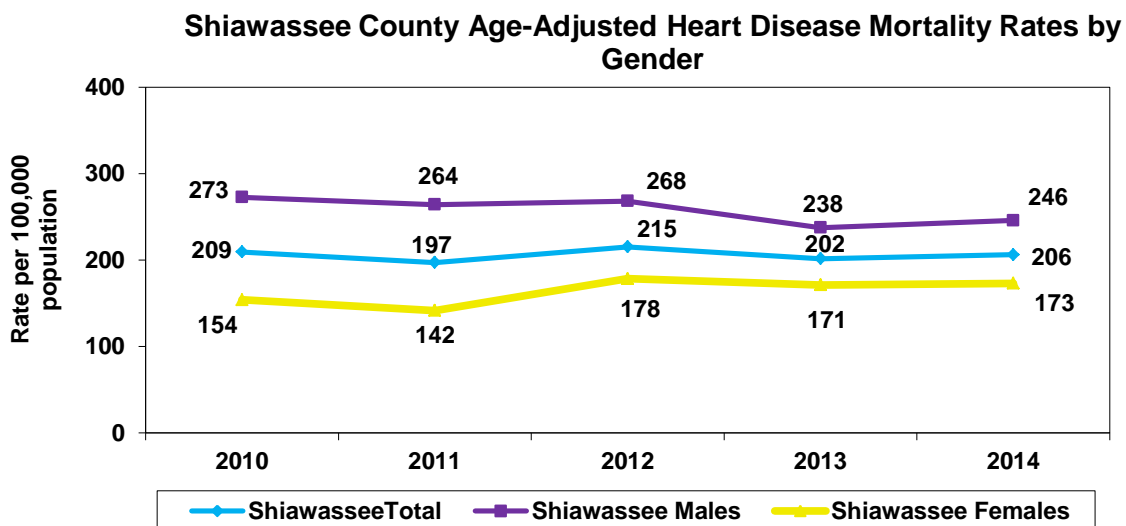
(Source: 2016 Shiawassee Health Assessment and 2014 BRFSS)

The following graphs show the age-adjusted mortality rates per 100,000 population for heart disease and stroke by gender.

- When age differences are accounted for, the statistics indicate that the 2012-2014 Shiawassee County heart disease mortality rate was higher than the figure for the state, the U.S. figure and the Healthy People 2020 target.
- The Shiawassee County age-adjusted stroke mortality rate for 2011-2013 was higher than the state, U.S. figure, and the Healthy People 2020 target objective.



**The Healthy People 2020 Target objective for Coronary Heart Disease is reported for heart attack mortality.
(Source: MDHHS, Vital Statistics, Health Indicators Warehouse, Healthy People 2020)*



(Source: CDC Wonder, 2010-2014)

Healthy People 2020 Objectives

Heart Disease and Stroke (HDS)

Objective	Shiawassee County 2016	2013 U.S. Baseline*	Healthy People 2020 Target
HDS-5: Reduce proportion of adults with hypertension	33%	31% Adults age 18 and up	27%
HDS-6: Increase proportion of adults who had their blood cholesterol checked within the preceding 5 years	82%	76% Adults age 18 & up	82%
HDS-7: Decrease proportion of adults with high total blood cholesterol (TBC)	43%	38% Adults age 20 & up with TBC>240 mg/dl	14%

**All U.S. figures age-adjusted to 2000 population standard.*

(Source: Healthy People 2020, 2013 BRFSS, 2016 Shiawassee County Health Assessment)

Stroke Warning Signs and Symptoms

F.A.S.T. is an easy way to remember the sudden signs and symptoms of a stroke. When you can spot the signs, you'll know quickly that you need to call 9-1-1 for help. This is important because the sooner a stroke victim gets to the hospital, the sooner they'll get treatment. Being prompt can make a remarkable difference in their recovery. F.A.S.T is:

- **Face Drooping:** Does one side of the face droop or is it numb? Ask the person to smile.
- **Arm Weakness:** Is one arm weak or numb? Ask the person to raise both arms. Does one arm drift downward?
- **Speech Difficulty:** Is speech slurred, are they unable to speak, or are they hard to understand? Ask the person to repeat a simple sentence, like "the sky is blue." Is the sentence repeated correctly?
- **Time to call 911:** If the person shows any of these symptoms, even if the symptoms go away, call 9-1-1 and get them to the hospital immediately.

Beyond F.A.S.T- Other Symptoms to Know

- Sudden confusion or trouble understanding
- Sudden numbness or weakness of the leg or arm
- Sudden severe headache with no known cause
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance or coordination



(Source: American Heart Association, *Stroke Warning Signs and Symptoms*, 2013, http://strokeassociation.org/STROKEORG/WarningSigns/Stroke-Warning-Signs-and-Symptoms_UCM_308528_SubHomePage.jsp)

Heart Attack Warning Signs and Symptoms

Heart attacks can be sudden and intense, but most start with mild pain or discomfort. Even if you are unsure if it is a heart attack, have it checked out. Here are signs that can indicate a heart attack is happening:

- **Chest discomfort.** Most discomfort for heart attacks comes in the center of the chest and lasts for more than a few minutes or goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness or pain.
- **Discomfort in other areas of the upper body.** Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw or stomach.
- **Shortness of breath** with or without chest discomfort.
- **Other signs** may include breaking out in a cold sweat, nausea or lightheadedness.

(Source: American Heart Association, *Warning Signs of a Heart Attack*, 2015, http://www.heart.org/HEARTORG/Conditions/HeartAttack/WarningSignsofaHeartAttack/Warning-Signs-of-a-Heart-Attack_UCM_002039_Article.jsp)

Adult | CANCER

Key Findings

Michigan Department of Health and Human Services statistics indicate that from 2010-2014, a total of 792 Shiawassee County residents died from cancer, the second leading cause of death in the county. The American Cancer Society advises that not using tobacco products, maintaining a healthy weight, adopting a physically active lifestyle, eating more fruits and vegetables, limiting alcoholic beverages and early detection may reduce overall cancer deaths.

Shiawassee County Incidence of Cancer, 2012

All Types: 387 cases

- Breast: 60 cases (16%)
- Prostate: 56 cases (14%)
- Lung and Bronchus: 55 cases (14%)
- Colon and Rectum: 40 cases (10%)

In 2014, there were 161 cancer deaths in Shiawassee County.

(Source: MDHHS, Cancer Statistics, updated: July 28, 2015)

Cancer Facts

- The Michigan Department of Health and Human Services (MDHHS) vital statistics indicate that from 2010-2014, cancers caused 22% (792 of 3,530 total deaths) of all Shiawassee County resident deaths. The largest percent (31%) of cancer deaths were from lung and bronchus cancer *(Source: MDHHS Vital Statistics)*.
- The American Cancer Society reports that smoking tobacco is associated with cancers of the mouth, lips, nasal cavity (nose) and sinuses, larynx (voice box), pharynx (throat), and esophagus (swallowing tube). Also, smoking has been associated with cancers of the lung, colorectal, stomach, pancreas, kidney, bladder, uterine cervix, ovary (mucinous) and acute myeloid leukemia. The 2016 health assessment project has determined that 16% of Shiawassee County adults were current smokers and many more were exposed to environmental tobacco smoke, also a cause of heart attacks and cancer.

A current smoker is defined as someone who has smoked over 100 cigarettes in their lifetime and currently smokes some or all days.

Lung Cancer

- In Shiawassee County, 15% of male adults were current smokers and 54% of them had stopped smoking for one or more days in the past 12 months because they were trying to quit *(Source: 2016 Shiawassee County Health Assessment)*.
- The Michigan Department of Health and Human Services reported that lung cancer was the second leading cause of male and female invasive cancer incidence from 2010-2012 in Shiawassee County, with a per year average of 37 cases for males and 30 cases for females.
- Approximately 17% of female adults in the county were current smokers and 60% had stopped smoking for one or more days in the past 12 months because they were trying to quit *(Source: 2016 Shiawassee County Health Assessment)*.
- According to the American Cancer Society, smoking causes 90% of lung cancer deaths in the U.S. Men and women who smoke are about 25 times more likely to develop lung cancer than nonsmokers *(Source: American Cancer Society, Facts & Figures 2016)*.

15% of Shiawassee County male adults and 17% of female adults were current smokers.

CANCER

Breast Cancer

- In 2016, 57% of Shiawassee County females reported having had a clinical breast examination in the past year.
- 64% of Shiawassee County females over the age of 40 had a mammogram in the past year.
- The 5-year relative survival for women diagnosed with localized breast cancer (cancer that has not spread to lymph nodes or other locations outside the breast) is 99%
(Source: American Cancer Society, Facts & Figures 2016).
- For women at average risk of breast cancer, recently updated American Cancer Society screening guidelines recommended that those 40 to 44 years of age have the choice of annual mammography; those 45 to 54 have annual mammography, and those 55 years of age and older have biennial or annual mammography, continuing as long as their overall health is good and life expectancy is 10 or more years. For some women at high risk of breast cancer, annual screening using magnetic resonance imaging (MRI) in addition to mammography is recommended, typically starting at age 30 (Source: American Cancer Society, Facts & Figures 2016).

Almost two-thirds (64%) of Shiawassee County females over the age of 40 had a mammogram in the past year.

Colon and Rectum Cancer

- In 2016, 81% of Shiawassee County adults over the age of 50 reported having been screened for colorectal cancers at some time in their life and 62% had been screened in the past 5 years. In the U.S., 90% of colon cancers occur in individuals over the age of 50. Because of this, the American Cancer Society suggests that every person age 50 and older have regular colon cancer screenings.
- The American Cancer Society recognizes any cancer involving the esophagus, stomach, small intestine, colon, rectum, anus (anal canal and anorectum), liver, gallbladder or pancreas as a digestive cancer.
- In Shiawassee County, colorectal cancer was the third leading cause of male and female invasive cancer incidence from 2010 to 2012, with a per year average of 17 new invasive cancer cases for females and 16 for males.
- The American Cancer Society reports several risk factors for colorectal cancer including: age; personal or family history of colorectal cancer, polyps, or inflammatory bowel disease; obesity; physical inactivity; a diet high in red or processed meat; alcohol use; long-term smoking; and possibly very low intake of fruits and vegetables.

Prostate Cancer

- In Shiawassee County, prostate cancer was the leading cause of male invasive cancer incidence from 2010 to 2012, with an average of 64 cases per year.
- Incidence rates for prostate cancer are 60% higher in African Americans than in whites and they are twice as likely to die of prostate cancer. In addition, about 60% of prostate cancers occur in men over the age of 65, and 97% occur in men 50 and older. Other risk factors include strong familial predisposition, diet high in processed meat or dairy foods, and obesity. African American men and Caribbean men of African descent have the highest documented prostate cancer incidence rates in the world (Source: American Cancer Society, Facts & Figures 2016).

Shiawassee County Number of Cancer Cases 2003-2012

Year	All Sites	Breast	Colon & Rectum	Lung	Prostate
2012	387	60	40	55	56
2011	468	60	30	84	76
2010	391	48	28	61	61
2009	469	56	48	67	77
2008	430	56	46	62	61
2007	406	49	46	52	72
2006	356	51	43	48	65
2005	369	40	33	58	56
2004	382	45	40	43	45
2003	409	49	28	66	52

Shiawassee County Number of Cancer Deaths 2003-2012

Year	All Sites	Breast	Colon & Rectum	Lung	Prostate
2012	165	8	17	45	5
2011	148	7	16	42	6
2010	159	10	11	61	4
2009	149	10	11	56	1
2008	159	11	10	56	5
2007	150	12	12	39	6
2006	138	12	10	33	2
2005	171	11	14	50	6
2004	129	12	12	32	3
2003	137	7	12	37	3

(Source for tables: MDHHS, Cancer Statistics updated 7-28-15)

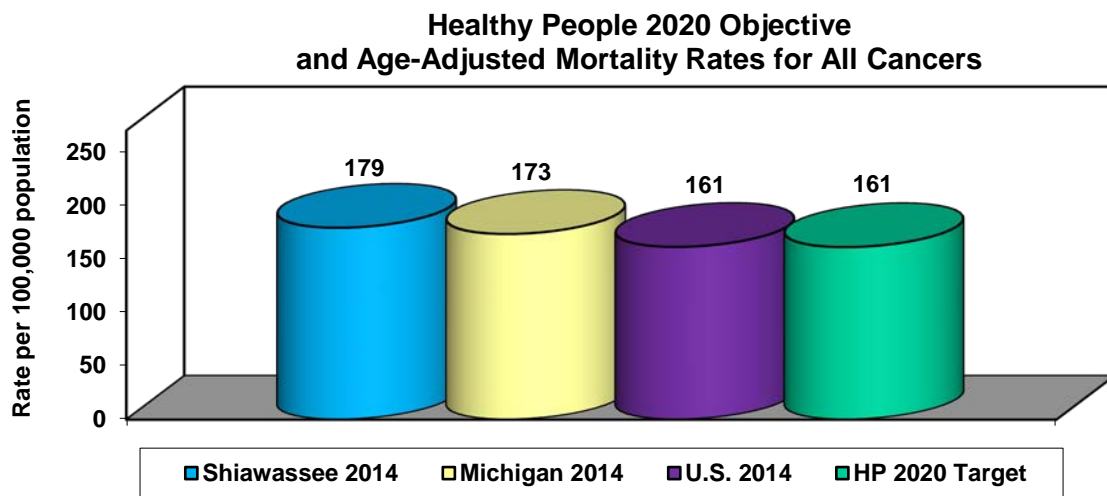
2016 Cancer Estimations

- In 2016, about 1,658,210 new cancer cases are expected to be diagnosed.
- The World Cancer Research Fund estimates that about twenty percent of the new cancer cases expected to occur in the U.S. in 2016 will be related to overweight or obesity, physical inactivity, and poor nutrition, and thus could be prevented.
- About 595,690 Americans are expected to die of cancer in 2016.
- In 2016, about 188,800 cancer deaths will be caused by tobacco use.
- In Michigan, 56,530 new cases of cancer are expected, and 21,100 cancer deaths are expected.
- The Michigan female new breast cancer cases are expected to be 8,150.
- About 8,440 (15%) of all new cancer cases in Michigan are expected to be from lung and bronchus cancers.
- About 4,570 (8%) of all new cancer cases in Michigan are expected to be from colon and rectum cancers.
- The Michigan male, new prostate cancer cases are expected to be 6,000 (10%).

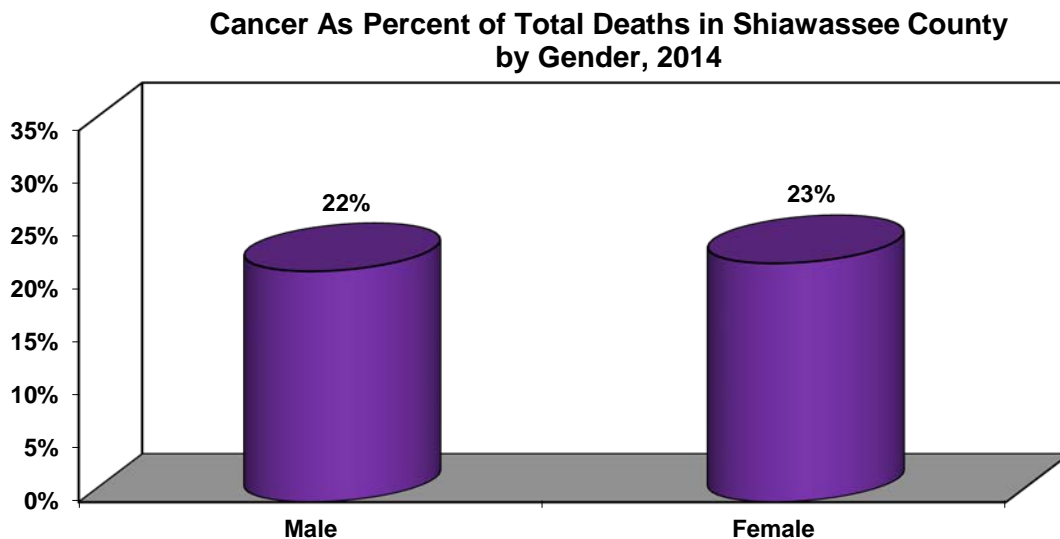
(Source: American Cancer Society, Facts and Figures 2016,
<http://www.cancer.org/acs/groups/content/@research/documents/document/acspsc-047079.pdf>)

The following graphs show the Shiawassee County, Michigan and U.S. age-adjusted mortality rates (per 100,000 population, 2000 standard) for all types of cancer in comparison to the Healthy People 2020 objective and cancer as a percentage of total deaths by gender. The graph indicates:

- When age differences are accounted for, Shiawassee County had a higher cancer mortality rate than Michigan, the U.S., and the Healthy People 2020 target objective.
- The percentage of Shiawassee County females who died from all cancers is higher than the percentage of Shiawassee County males who died from all cancers.



(Source: MDHHS, Cancer Statistics, updated 2-10-16; Healthy People 2020)



(Source: MDHHS, Cancer Statistics, updated 2-10-16)

Adult | DIABETES

Key Findings

In 2016, 10% of Shiawassee County adults had been diagnosed with diabetes.

Diabetes

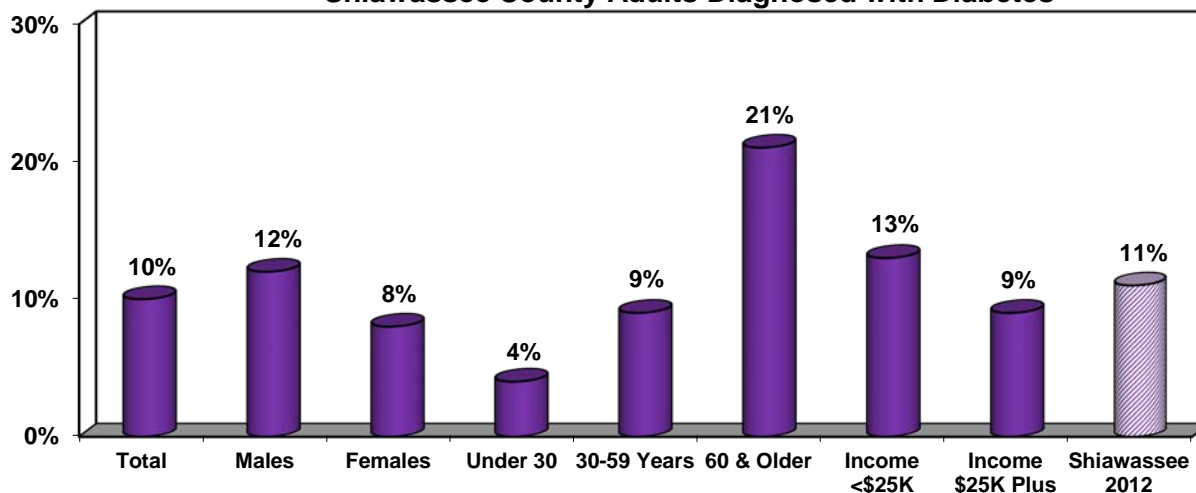
- The 2016 health assessment project has identified that 10% of Shiawassee County adults had been diagnosed with diabetes, increasing to 21% of those over 60. The 2014 BRFSS reports a prevalence of 10% for both Michigan and the U.S.
- 5% of adults had been diagnosed with pre-diabetes.
- Adults with diabetes were using the following to treat their diabetes: checking blood sugar (65%), diet control (60%), diabetes pills (59%), annual vision exam (56%), checking A1C (51%), checking their feet (50%), 6-month checkup with provider (49%), exercise (46%), insulin (25%), dental exam (16%), taking a class (15%), injectables (3%) and nothing (7%).
- Nearly two-fifths (39%) of adults with diabetes rated their health as fair or poor.
- Shiawassee County adults diagnosed with diabetes also had one or more of the following characteristics or conditions:
 - 89% were obese or overweight
 - 78% had been diagnosed with high blood cholesterol
 - 74% had been diagnosed with high blood pressure

Diabetes Facts

- Nearly 30 million children and adults in the United States have diabetes.
- 86 million Americans have prediabetes.
- 1.7 million Americans are diagnosed with diabetes every year.
- Nearly 10% of the entire U.S. population has diabetes, including over 25% of seniors.
- As many as 1 in 3 American adults will have diabetes in 2050 if present trends continue.
- The economic cost of diagnosed diabetes in the U.S. is \$245 billion per year.
- 8.1 million Americans have undiagnosed diabetes
- Diabetes kills more Americans every year than AIDS and breast cancer combined.
- Diabetes is the primary cause of death for 69,071 Americans each year, and contributes to the death of 231,051 Americans annually.

(Source: American Diabetes Association, 2014 Fast Facts, http://professional.diabetes.org/admin/UserFiles/0%20-%20Sean/14_fast_facts_june2014_final3.pdf)

Shiawassee County Adults Diagnosed with Diabetes



DIABETES

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Diagnosed with diabetes	11%	10%	10%	10%

Diabetes Symptoms

The most common symptoms of type 1 and type 2 diabetes are:

TYPE 1 DIABETES

- Frequent urination
- Unusual thirst
- Extreme hunger
- Unusual weight loss
- Extreme fatigue and irritability

TYPE 2 DIABETES

- Any of the type 1 symptoms
- Blurred vision
- Tingling/numbness in hands or feet
- Recurring skin, gum, or bladder infections
- Cuts/bruises that are slow to heal
- Frequent infections

(Source: American Diabetes Association, *Diabetes Basics, Symptoms*, <http://www.diabetes.org/diabetes-basics/symptoms/>)

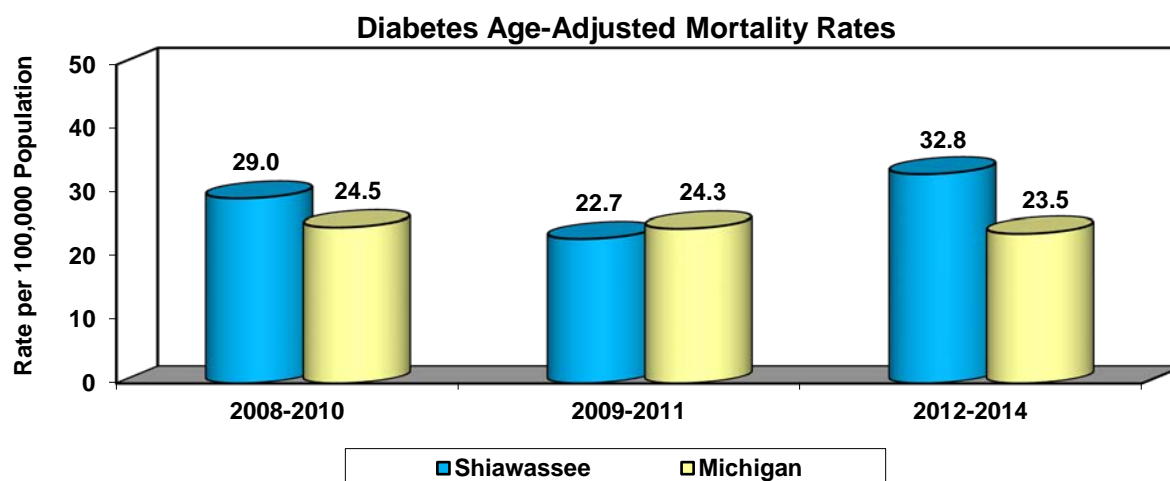
Who is at Greater Risk for Type 2 Diabetes

- People with impaired glucose tolerance (IGT) and/or impaired fasting glucose (IFG)
- People over age 45
- People with a family history of diabetes
- People who are overweight or obese
- People who do not exercise regularly
- People with low HDL cholesterol or high triglycerides, high blood pressure
- Certain racial and ethnic groups (e.g. Non-Hispanic Blacks, Hispanic/Latino Americans, Asian Americans and Pacific Islanders, and American Indians and Alaska Natives)
- Women who had gestational diabetes, or who have had a baby weighing 9 pounds or more at birth

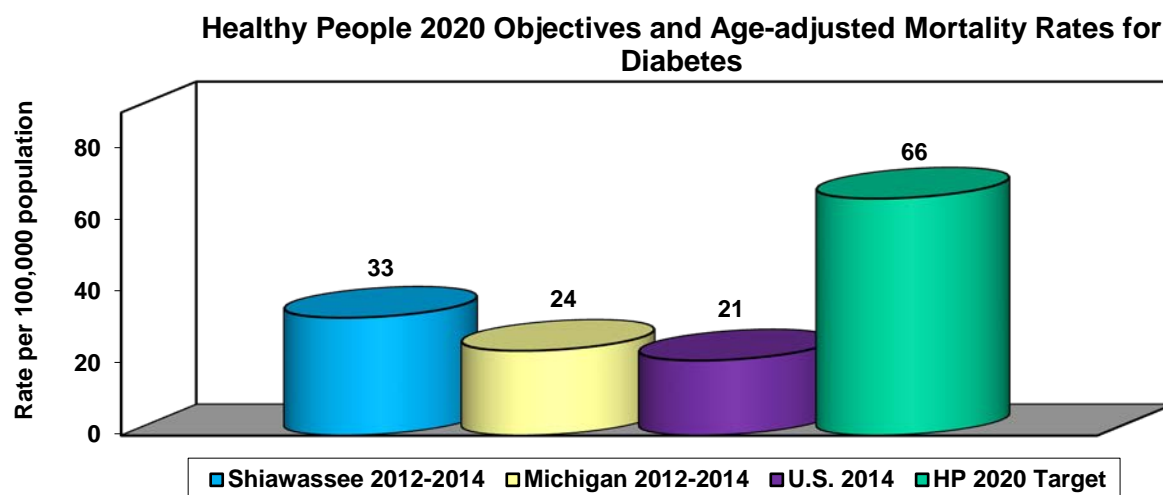
(Source: American Diabetes Association, *Diabetes Basics, Your Risk: Who is at Greater Risk for Type 2 Diabetes*, <http://www.diabetes.org/diabetes-basics/prevention/risk-factors>)

The following graphs show age-adjusted mortality rates from diabetes for Shiawassee County and Michigan residents with comparison to the Healthy People 2020 target objective.

- Shiawassee County's age-adjusted diabetes mortality rate fluctuated from 2008 to 2014.
- From 2012 to 2014, the Shiawassee County age-adjusted diabetes mortality rate was higher than the state rate and the national rate but lower than the Healthy People 2020 target objective.



(Source: Health Indicators Warehouse)



(Source: Health Indicators Warehouse and Healthy People 2020, CDC)

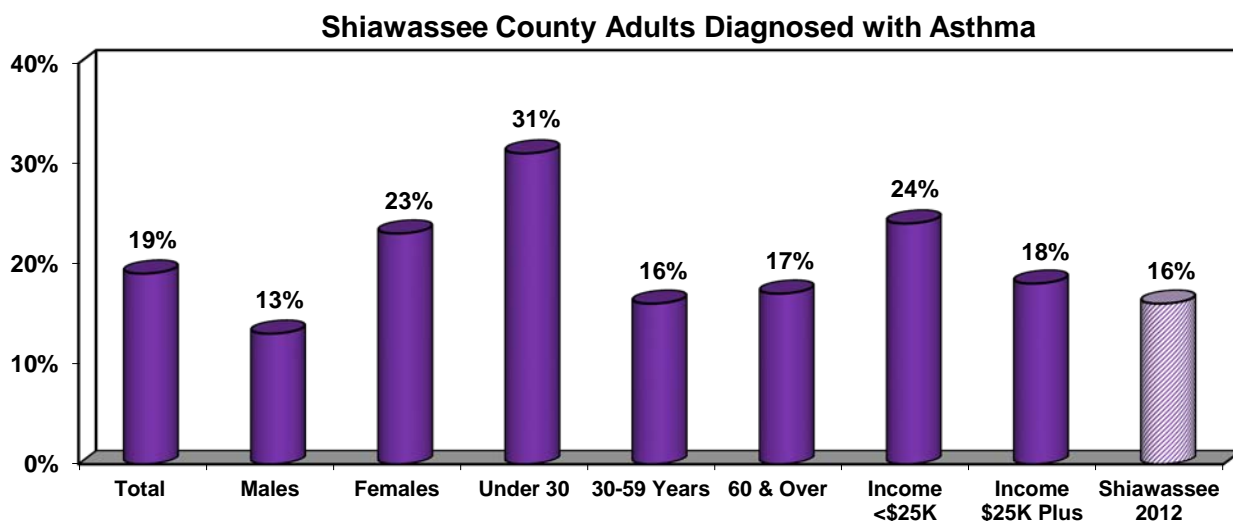
Adult | ASTHMA AND OTHER RESPIRATORY DISEASE

Key Findings

According to the Shiawassee County survey data, 19% of adults had been diagnosed with asthma.

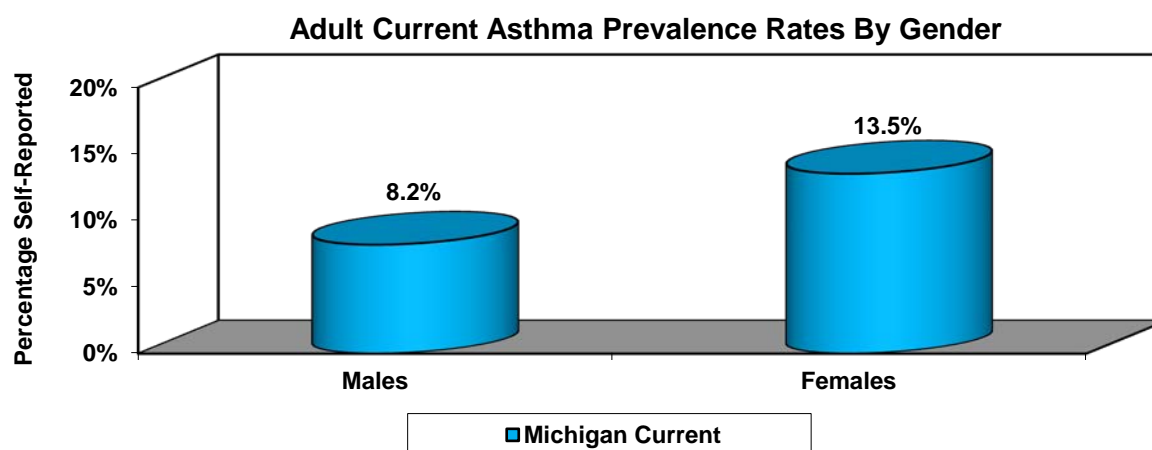
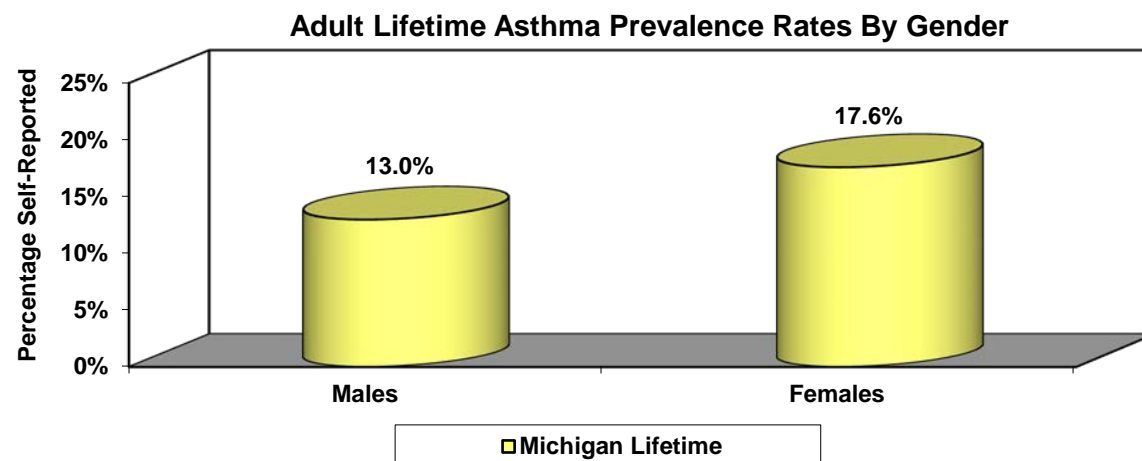
Asthma and Other Respiratory Disease

- In 2016, 19% of Shiawassee County adults had been diagnosed with asthma, increasing to 31% of those under the age of 30.
- 15% of Michigan and 14% of U.S. adults had ever been diagnosed with asthma (Source: 2014 BRFSS).
- Chronic lower respiratory disease was the 3rd leading cause of death in Shiawassee County and in Michigan, in 2012 (Source: MDHHS, Vital Statistics).



Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Had been diagnosed with asthma	16%	19%	15%	14%

The following graphs demonstrate the lifetime and current prevalence rates of asthma by gender for Michigan residents.



(Source for graphs: 2014 BRFSS)

ASTHMA

What Causes an Asthma Attack?

- **Tobacco Smoke:** People should never smoke near you, in your home, in your car, or wherever you may spend a lot of time if you have asthma. Tobacco smoke is unhealthy for everyone, especially people with asthma. If you have asthma and you smoke, quit smoking.
- **Dust Mites:** If you have asthma, dust mites can trigger an asthma attack. To prevent attacks, use mattress covers and pillowcase covers to make a barrier between dust mites and yourself. Do not use down-filled pillows, quilts, or comforters. Remove stuffed animals and clutter from your bedroom.
- **Outdoor Air Pollution:** This pollution can come from factories, automobiles, and other sources. Pay attention to air quality forecasts to plan activities when air pollution levels will be low.
- **Cockroach Allergens:** Get rid of cockroaches in your home by removing as many water and food sources as you can. Cockroaches are often found where food is eaten and crumbs are left behind. Cockroaches and their droppings can trigger an asthma attack, so vacuum or sweep areas that might attract cockroaches at least every 2 to 3 days.
- **Pets:** Furry pets can trigger an asthma attack. If you think a furry pet may be causing attacks, you may want to find the pet another home. If you can't or don't want to find a new home for a pet, keep it out of the person with asthma's bedroom.
- **Mold:** Breathing in mold can trigger an asthma attack. Get rid of mold in your home to help control your attacks. Humidity, the amount of moisture in the air, can make mold grow. An air conditioner or dehumidifier will help keep the humidity level low.
- **Smoke from Burning Wood or Grass:** Smoke from burning wood or other plants is made up of a mix of harmful gases and small particles. Breathing in too much of this smoke can cause an asthma attack. If you can, avoid burning wood in your home.
- **Other Triggers:** Infections linked to influenza (flu), colds, and respiratory syncytial virus (RSV) can trigger an asthma attack. Sinus infections, allergies, breathing in some chemicals, and acid reflux can also trigger attacks. Physical exercise, some medicines, bad weather, breathing in cold air, some foods, and fragrances can also trigger an asthma attack.

(Source: Centers for Disease Control, Vital Signs, Asthma, updated November 18, 2014, <http://www.cdc.gov/asthma/faqs.htm>)

Adult | ARTHRITIS

Key Findings

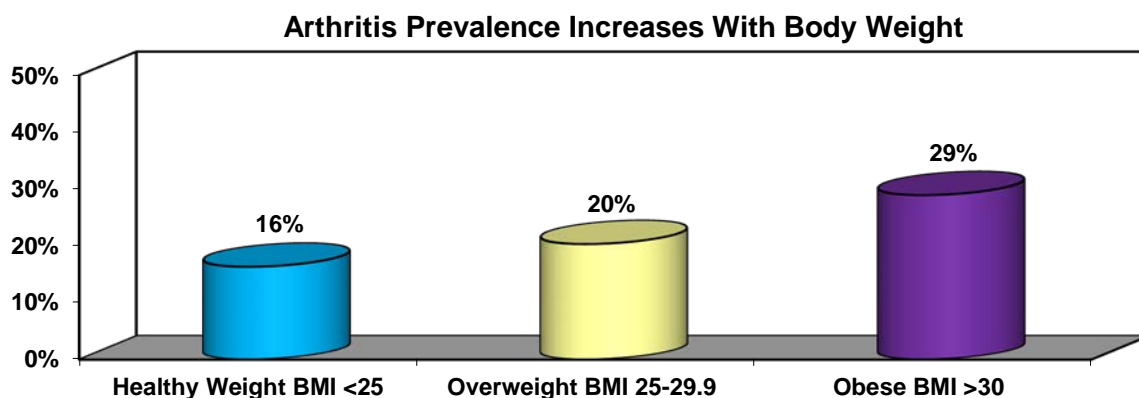
According to the Shiawassee County survey data, 36% of Shiawassee County adults were diagnosed with arthritis. According to the 2014 BRFSS, 32% of Michigan adults and 26% of U.S. adults were told they have arthritis.

Arthritis

- More than one-third (36%) of Shiawassee County adults were told by a health professional that they had some form of arthritis, increasing to 66% of those 60 and older.
- According to the 2014 BRFSS, 32% of Michigan adults and 26% of U.S. adults were told they have arthritis.

36% of Shiawassee County adults were told by a health professional that they had some form of arthritis, increasing to 66% of those 60 and older.

- An estimated 52.5 million U.S. adults (about 1 of 5) report having doctor-diagnosed arthritis. As the U.S. population ages, the number of adults with arthritis is expected to increase sharply to 67 million by 2030. (Source: CDC, *Arthritis at a Glance* 2014).
- Adults are at higher risk of developing arthritis if they are female, have genes associated with certain types of arthritis, have an occupation associated with arthritis, are overweight or obese, and/or have joint injuries or infections (Source: CDC).

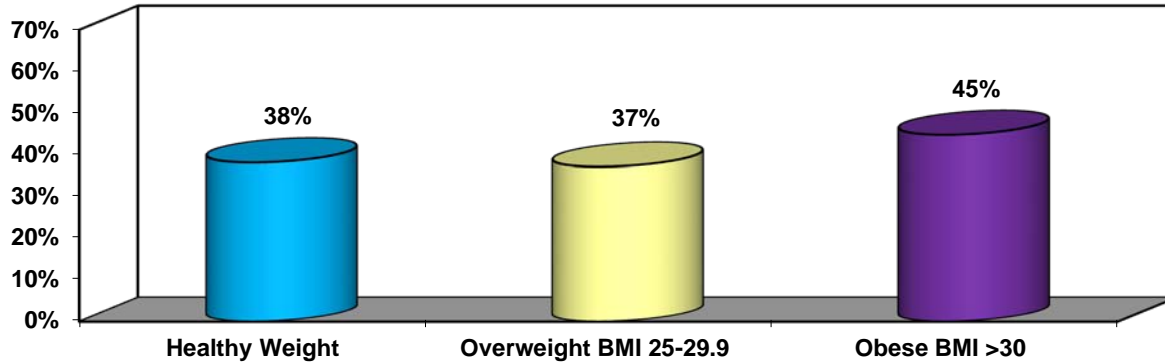


(Source for graph: CDC Arthritis, Morbidity and Mortality Weekly Report 2013; 62(44):869-873)

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Diagnosed with arthritis	33%	36%	32%	26%

28% of Shiawassee County adults were limited in some way because of a physical, mental or emotional problem. Among those who were limited in some way, 55% were limited because of arthritis.

Arthritis-Attributable Activity Limitations Increase with Weight in the U.S.



(Source for graph: CDC Arthritis, Morbidity and Mortality Weekly Report 2010; 62(44):869-873)

Arthritis: Key Public Health Messages

Early diagnosis of arthritis and self-management activities can help people decrease their pain, improve function, and stay productive.

Key self-management activities include the following:

- **Be Active** –Research has shown that physical activity decreases pain, improves function, and delays disability. Make sure you get at least 30 minutes of moderate physical activity at least 5 days a week. You can get activity in 10 minute intervals.
- **Watch your weight** –The prevalence of arthritis increases with increasing weight. Research suggests that maintaining a healthy weight reduces the risk of developing arthritis and may decrease disease progression. A loss of just 11 pounds can decrease the occurrence (incidence) of new knee osteoarthritis and a modest weight loss can help reduce pain and disability.
- **See your doctor** –Although there is no cure for most types of arthritis, early diagnosis and appropriate management is important, especially for inflammatory types of arthritis. For example, early use of disease-modifying drugs can affect the course of rheumatoid arthritis. If you have symptoms of arthritis, see your doctor and begin appropriate management of your condition.
- **Protect your joints** –Joint injury can lead to osteoarthritis. People who experience sports or occupational injuries or have jobs with repetitive motions like repeated knee bending have more osteoarthritis. Avoid joint injury to reduce your risk of developing osteoarthritis.

(Source: Centers for Disease Control and Prevention, Arthritis: Key Public Health Messages, www.cdc.gov/arthritis/basics/key.htm, updated January 2015)

Adult | WEIGHT STATUS

Key Findings

The 2016 Health Assessment identified that 75% of Shiawassee County adults were overweight or obese based on Body Mass Index (BMI). More than two-fifths (41%) of Shiawassee County adults were obese. The 2014 BRFSS indicates that 31% of Michigan and 30% of U.S. adults were obese by BMI. More than half (52%) of adults were trying to lose weight.

Adult Weight Status

- In 2016, the health assessment indicated that three-fourths (75%) of Shiawassee County adults were either overweight (34%) or obese (41%) by Body Mass Index (BMI). This puts them at elevated risk for developing a variety of diseases.
- Shiawassee County adults described their weight as: overweight (45%), just about the right weight (33%), obese (10%), very overweight (7%), underweight (4%), and very underweight (1%).
- More than half (52%) of adults were trying to lose weight, 22% were trying to maintain their current weight or keep from gaining weight, and 3% were trying to gain weight.
- Shiawassee County adults did the following to lose weight or keep from gaining weight: ate less food, fewer calories, or foods low in fat (49%), drank more water (42%), exercised (39%), ate a low-carb diet (13%), health coaching (3%), smoked cigarettes (3%), took diet pills, powders or liquids without a doctor's advice (1%), took prescribed medications (1%), went without eating 24 or more hours (1%), bariatric surgery (<1%), participated in a prescribed dietary or fitness program (<1%), took laxatives (<1%), used a weight loss program (1%), and vomited after eating (<1%).

41% of Shiawassee County adults were obese.

Physical Activity

- In Shiawassee County, 51% of adults were engaging in some type of physical activity or exercise for at least 30 minutes 3 or more days per week. 29% of adults were exercising 5 or more days per week. More than one-fourth (27%) of adults were not participating in any physical activity in the past week, including 4% who were unable to exercise.
- Reasons for not exercising included: time (23%), too tired (20%), pain/discomfort (18%), laziness (17%), weather (14%), could not afford a gym membership (7%), chose not to exercise (5%), no childcare (5%), no exercise partner (3%), poorly maintained/no sidewalks (3%), did not know what activity to do (2%), no gym available (2%), no walking/biking trails (2%), no access to parks (1%), safety (1%), doctor advised them not to exercise (<1%) and other reasons (7%).
- The CDC recommends that adults participate in moderate exercise for at least 2 hours and 30 minutes every week or vigorous exercise for at least 1 hour and 15 minutes every week. Whether participating in moderate or vigorous exercise, CDC also recommends muscle-strengthening activities that work all major muscle groups on 2 or more days per week (Source: CDC, *Physical Activity for Everyone*).
- On an average day, adults spent time doing the following: 2.7 hours watching television, 1.4 hours on their cell phone, 1.3 hours on the computer outside of work, and 0.2 hours playing video games.

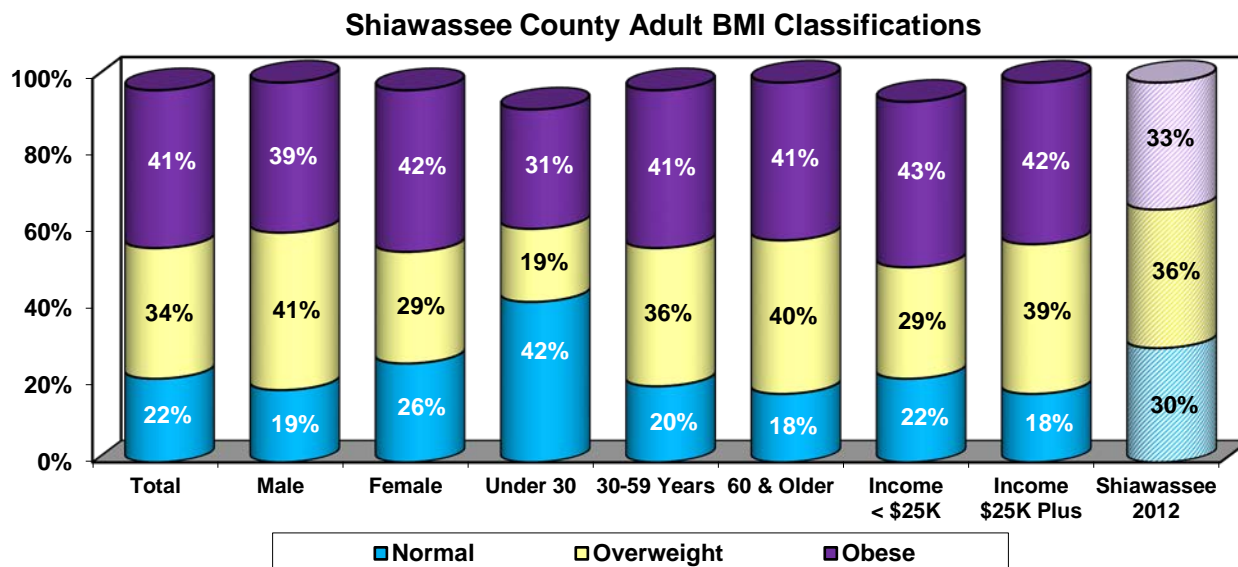
Nutrition

- In 2016, 6% of adults were eating 5 or more servings of fruits and vegetables per day. 65% of adults were eating 1 to 2 servings per day. 25% of adults were eating 3-4 servings per day and 4% of adults did not eat any fruits or vegetables. The American Cancer Society recommends that adults eat at least 2 ½ cups of fruits and vegetables per day to reduce the risk of cancer and to maintain good health. The 2009 BRFSS reported that only 23% of Michigan and U.S. adults were eating the recommended number of servings of fruits and vegetables.

More than half (52%) of Shiawassee County adults were trying to lose weight.

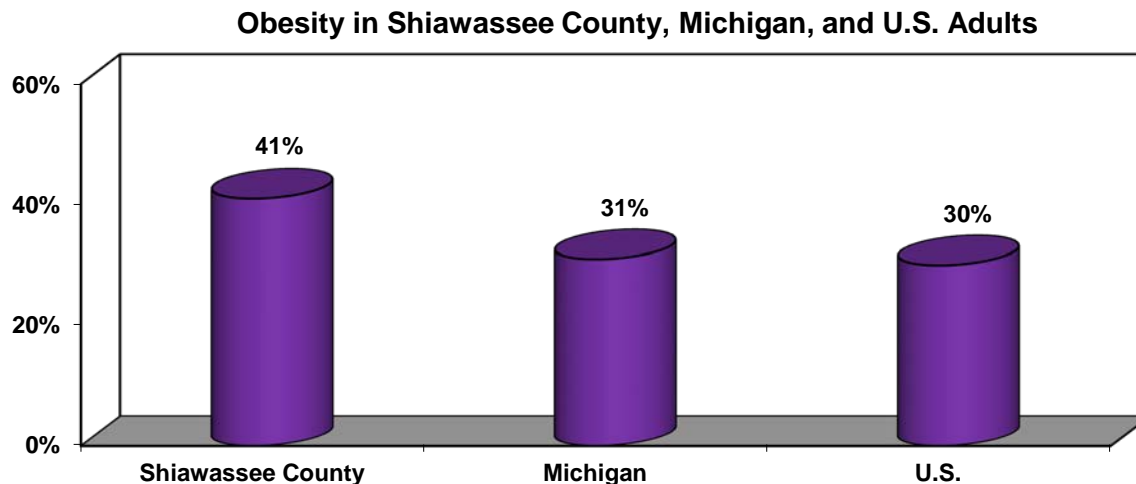
- Shiawassee County adults reported the following reasons they chose the types of food they ate: taste (57%), enjoyment (50%), cost (49%), ease of preparation (43%), healthiness of food (43%), food they were used to (32%), time (31%), availability (27%), nutritional content (24%), what their spouse prefers (24%), calorie content (16%), what their child prefers (15%), artificial sweetener content (10%), if the food was genetically modified (10%), if the food was organic (9%), health care provider's advice (4%), if the food was gluten free (4%), if the food was lactose free (4%), other food sensitivities (1%), and other reasons (2%).
- Shiawassee County adults purchased their fruit and vegetables from the following places: large grocery store (79%), local grocery store (42%), Farmer's Market (33%), grow their own/garden (32%), restaurants (7%), food pantry (3%), mobile pantry (3%), Dollar General/Store (2%), community garden (1%), corner/convenience store (1%), group purchasing, Community Supported Agriculture (CSA) (1%), and other places (2%).
- Adults ate out in a restaurant or brought home take-out food an average of 2.2 times per week.

The following graphs show the percentage of Shiawassee County adults who are overweight or obese by Body Mass Index (BMI). Examples of how to interpret the information include: 22% of all Shiawassee County adults were classified as normal weight, 34% were overweight, and 41% were obese.



(Percentages may not equal 100% due to the exclusion of data for those who were classified as underweight)

The following graph shows the percentage of Shiawassee County adults who are obese compared to Michigan and U.S.



(Source: 2016 Shiawassee County Health Assessment and 2014 BRFSS)

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Obese	33%	41%	31%	30%
Overweight	36%	34%	35%	35%

Obesity Facts

- More than one-third of U.S. adults (34.9%) are obese.
- Obesity-related conditions include heart disease, stroke, type 2 diabetes and certain types of cancer, some of the leading causes of preventable death.
- The estimated annual medical cost of obesity in the U.S. was \$147 billion in 2008 U.S. dollars; the medical costs for people who are obese were \$1,429 higher than those of normal weight.
- African Americans have the highest age-adjusted rates of obesity (47.8%) followed by Hispanics (42.5%), whites (32.6%), and Asians (10.8%).

(Source: CDC, Adult Obesity Facts, updated September 21, 2015, <http://www.cdc.gov/obesity/data/adult.html>)

Adult | TOBACCO USE

Key Findings

In 2016, 16% of Shiawassee County adults were current smokers and 27% were considered former smokers. In 2016, the American Cancer Society (ACS) stated that tobacco use was the most preventable cause of death worldwide, and is responsible for the deaths of approximately half of long-term users. Each year, tobacco use is responsible for almost 6 million premature deaths, 80% of which are in low-and middle-income countries, and by 2030, this number is expected to increase to 8 million (Source: Cancer Facts & Figures, American Cancer Society, 2016).

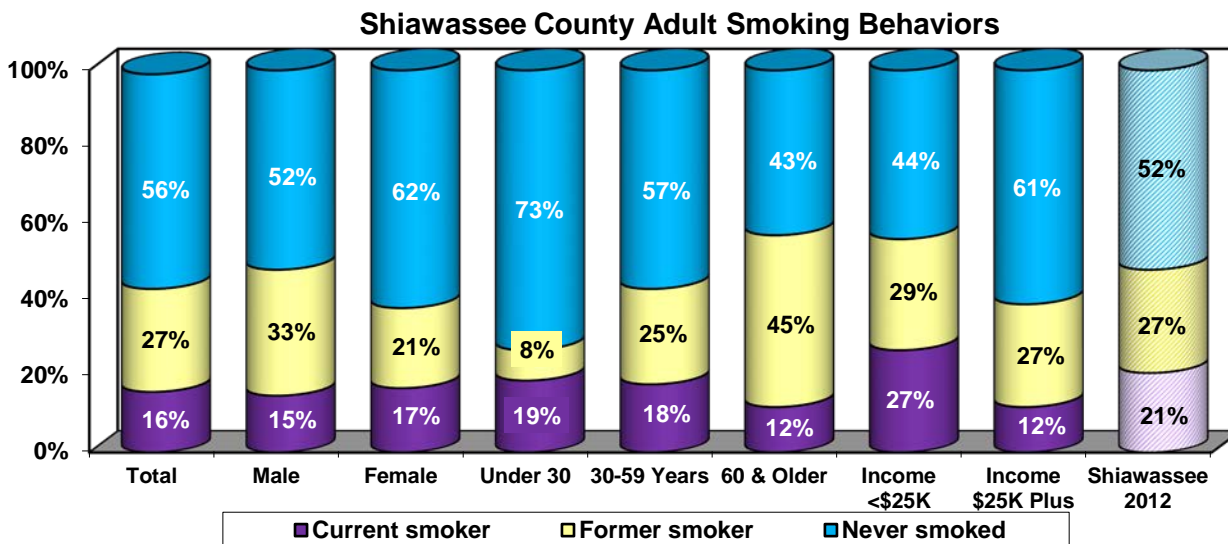
In 2016, 16% of Shiawassee County adults were current smokers.

Adult Tobacco Use Behaviors

- The 2016 health assessment identified that one-in-six (16%) Shiawassee County adults were current smokers (those who indicated smoking at least 100 cigarettes in their lifetime and currently smoke some or all days). The 2014 BRFSS reported current smoker prevalence rates of 21% for Michigan and 18% for the U.S.
- More than one-fourth (27%) of adults indicated that they were former smokers (smoked 100 cigarettes in their lifetime and now do not smoke). The 2014 BRFSS reported former smoker prevalence rates of 27% for Michigan and 25% for the U.S.
- Shiawassee County adult smokers were more likely to:
 - Have rated their overall health as poor (54%)
 - Have incomes less than \$25,000 (27%)
 - Have never been married (25%)
- Shiawassee County adults used the following tobacco products in the past year: cigarettes (19%), e-cigarettes (9%), roll-your-own (6%), chewing tobacco (5%), cigars (4%), cigarillos (2%), little cigars (2%), pipes (2%), swishers (2%), betel quid (1%), pouch (1%), snuff (1%), and Black and Milds (<1%).
- 59% of current smokers responded that they had stopped smoking for at least one day in the past year because they were trying to quit smoking.
- Shiawassee County adults had the following rules about smoking in their home: never allowed inside their home (83%), allowed anywhere inside their home (5%), allowed in some places or at some times (5%), no rules about smoking in their home (4%), and not allowed inside their home with children present (2%).

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Current smoker	19%	16%	21%	18%
Former smoker	24%	27%	27%	25%

The following graph shows the percentage of Shiawassee County adults who used tobacco. Examples of how to interpret the information include: 16% of all Shiawassee County adults were current smokers, 27% of all adults were former smokers, and 56% had never smoked.



Respondents were asked: "Have you smoked at least 100 cigarettes in your entire life?
 If yes, do you now smoke cigarettes every day, some days or not at all?"

59% of current smokers responded that they had stopped smoking for at least one day in the past year because they were trying to quit smoking.

Smoke-Free Living: Benefits & Milestones

According to the American Heart Association and the U.S. Surgeon General, this is how your body starts to recover:

- In your first 20 minutes after quitting: your blood pressure and heart rate recover from the cigarette-induced spike.
- After 12 hours of smoke-free living: the carbon monoxide levels in your blood return to normal.
- After two weeks to three months of smoke-free living: your circulation and lung function begin to improve.
- After one to nine months of smoke-free living: clear and deeper breathing gradually returns as coughing and shortness of breath diminishes; you regain the ability to cough productively instead of hacking, which cleans your lungs and reduces your risk of infection.
- One year after quitting smoking, a person's risk of coronary heart disease is reduced by 50 percent.
- Five to 15 years after quitting smoking, a person's risk of stroke is similar to that of a nonsmoker.
- After 10 years of smoke-free living, your lung cancer death rate is about half that of a person who has continued to smoke. The risk of other cancers, such as throat, mouth, esophagus, bladder, cervix and pancreas decreases too.

(Source: AHA, Smoke-free Living: Benefits & Milestones, 2012, from:
http://www.heart.org/HEARTORG/GettingHealthy/QuitSmoking/QuittingSmoking/Smoke-free-Living-Benefits-Milestones_UCM_322711_Article.jsp)

TOBACCO USE

Electronic Cigarettes Facts

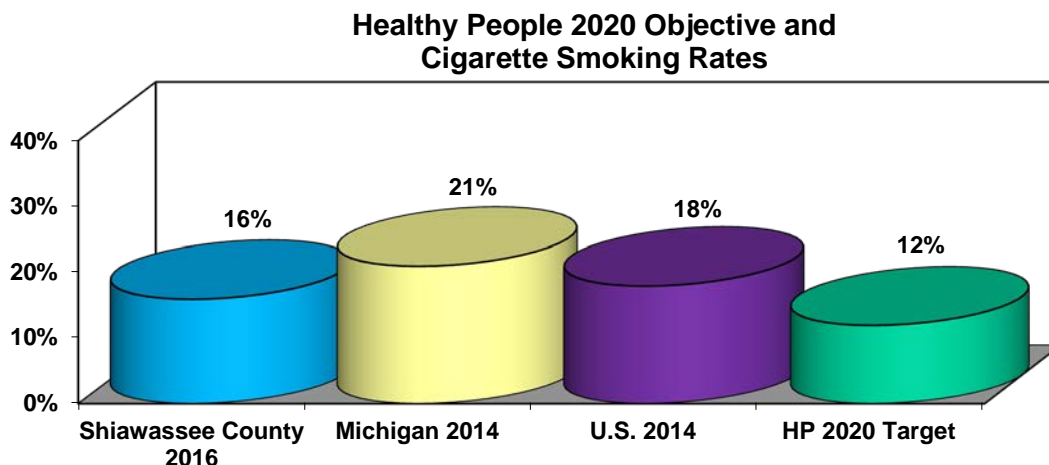
- Electronic cigarettes (e-cigarettes) are a type of electronic smoking device, resembling cigarettes. They can also look like pipes, pens, or USB memory sticks.
- E-cigarettes cost approximately \$30-60, and refill cartridges cost \$7-\$10. More recently, disposable e-cigarettes that “last up to two packs” are being sold for under \$10 in local and national convenience stores.
- Cartridges generally contain 10-20 mg of nicotine. However, as e-cigarettes are unregulated by the Food and Drug Administration (FDA), their contents and the level of these contents can be highly variable.
- Ever use of e-cigarettes is highest among current cigarette smoking adults in the U.S. and increased from 9.8% in 2010 to 21.2% in 2011 to 32% in 2012.
- Early studies by the FDA found varying levels of nicotine and other potentially harmful ingredients, including cancer-causing substances and di-ethylene glycol, which is found in anti-freeze. However, these substances were found at much lower levels than in traditional cigarettes.
- The awareness and use of electronic cigarettes are increasing. In 2011, 6 of 10 U.S. adults were aware of electronic cigarettes with 21% of smokers having ever used an electronic cigarette.
- Nicotine is found in both inhaled and exhaled vapor of electronic cigarettes. Studies have also found heavy metals, silicates, and cancer-causing compounds in exhaled e-cigarette vapor.

(Source: Philadelphia Department of Public Health, “Electronic Cigarette Fact sheet,” published February 2014, from: http://www.smokefreephilly.org/smokfree_philly/assets/File/Electronic%20Cigarette%20Fact%20Sheet_2_27_14.pdf & Legacy for Health, Tobacco Fact Sheet, May 2014, from: <http://www.legacyforhealth.org/content/download/582/6926/file/LEG-FactSheet-eCigarettes-JUNE2013.pdf>)

27% of Shiawassee County adults indicated that they were former smokers.

The following graph shows Shiawassee County, Michigan, and U.S. adult cigarette smoking rates. The BRFSS rates shown for Michigan and the U.S. were for adults 18 years and older. This graph shows:

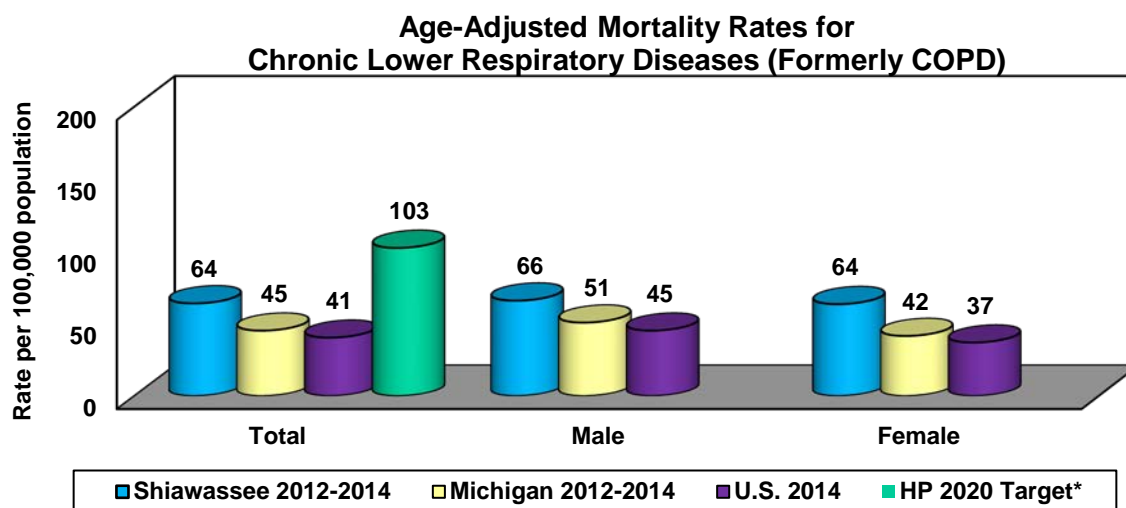
- Shiawassee County adult cigarette smoking rate was lower than the Michigan and U.S. rates, and higher than the Healthy People 2020 objectives.



(Source: 2016 Shiawassee County Health Assessment, 2014 BRFSS and Healthy People 2020)

The following graphs show Shiawassee County, Michigan, and U.S. age-adjusted mortality rates per 100,000 population for chronic lower respiratory diseases (formerly COPD) in comparison with the Healthy People 2020 objectives and the percentage of Shiawassee County and Michigan mothers who smoked during pregnancy. These graphs show:

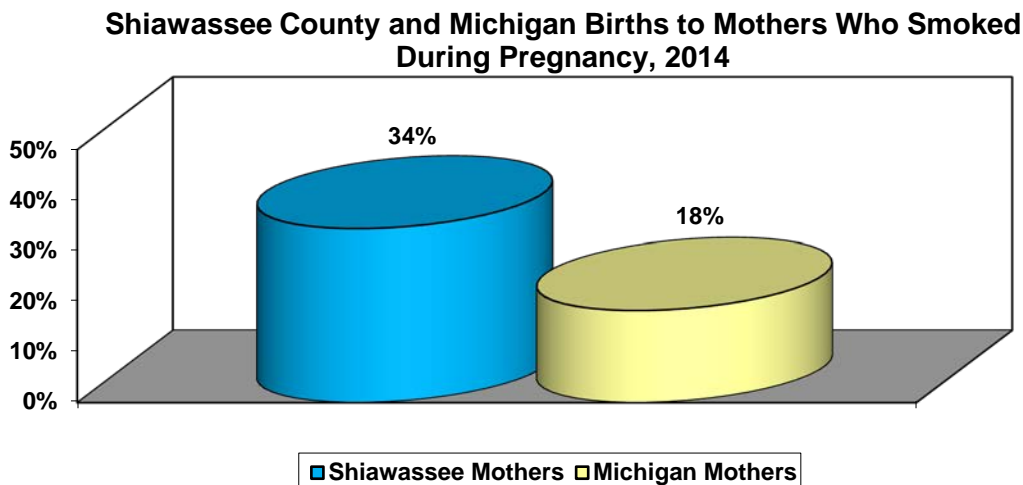
- From 2012-2014, Shiawassee County's age-adjusted mortality rate for Chronic Lower Respiratory Disease was higher than the Michigan rate and lower than the Healthy People 2020 target objective.
- From 2012-2014 male age-adjusted mortality rate for Chronic Lower Respiratory Disease was higher than the female rate during the same time period.
- In 2014, the percentage of mothers who smoked during pregnancy in Shiawassee County was higher than the Michigan rate.



(Source: Health Indicators Warehouse and Healthy People 2020)

* Healthy People 2020's target rate and the U.S. rate are for adults aged 45 years and older.

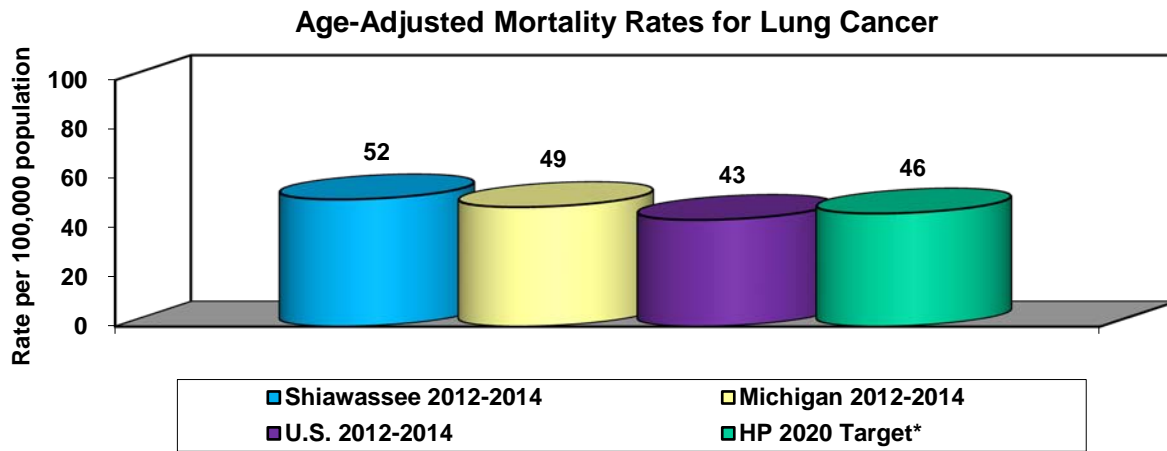
**HP2020 does not report different goals by gender.



(Source: MDHHS, Vital Statistics, 2014)

The following graphs show Shiawassee County, Michigan, and U.S. age-adjusted mortality rates per 100,000 population for lung cancers in comparison with the Healthy People 2020 objectives. The graph shows:

- From 2012-2014, the Shiawassee County age-adjusted mortality rate for lung cancer was higher than the state, national, and Healthy People 2020 target objective.



(Source: Healthy People 2020, Health Indicators Warehouse)

U.S. Adult Smoking Facts

- In 2014, nearly 17 of every 100 U.S. adults aged 18 years or older (16.8%) currently smoked cigarettes. This means an estimated 40 million adults in the United States currently smoke cigarettes.
- Cigarette smoking is the leading cause of preventable disease and death in the United States, accounting for more than 480,000 deaths every year, or 1 of every 5 deaths.
- More than 16 million Americans live with a smoking-related disease.
- Current smoking has declined from nearly 21 of every 100 adults (20.9%) in 2005 to nearly 17 of every 100 adults (16.8%) in 2014.
- Adults living below poverty level (26%) are more likely to smoke than adults living at or above poverty level.
- Smoking rates are higher among people with a lower education level.

(Source: CDC, *Adult Cigarette Smoking in the United States: Current Estimates*, March 14, 2016, from: http://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/)

Adult | ALCOHOL CONSUMPTION

Key Findings

In 2016, the Health Assessment indicated that 11% of Shiawassee County adults were considered frequent drinkers (drank an average of three or more days per week, per CDC guidelines). 46% of adults who drank had five or more drinks (for males) or 4 or more drinks (for females) on one occasion (binge drinking) in the past month. Four percent of adults drove after having perhaps too much to drink.

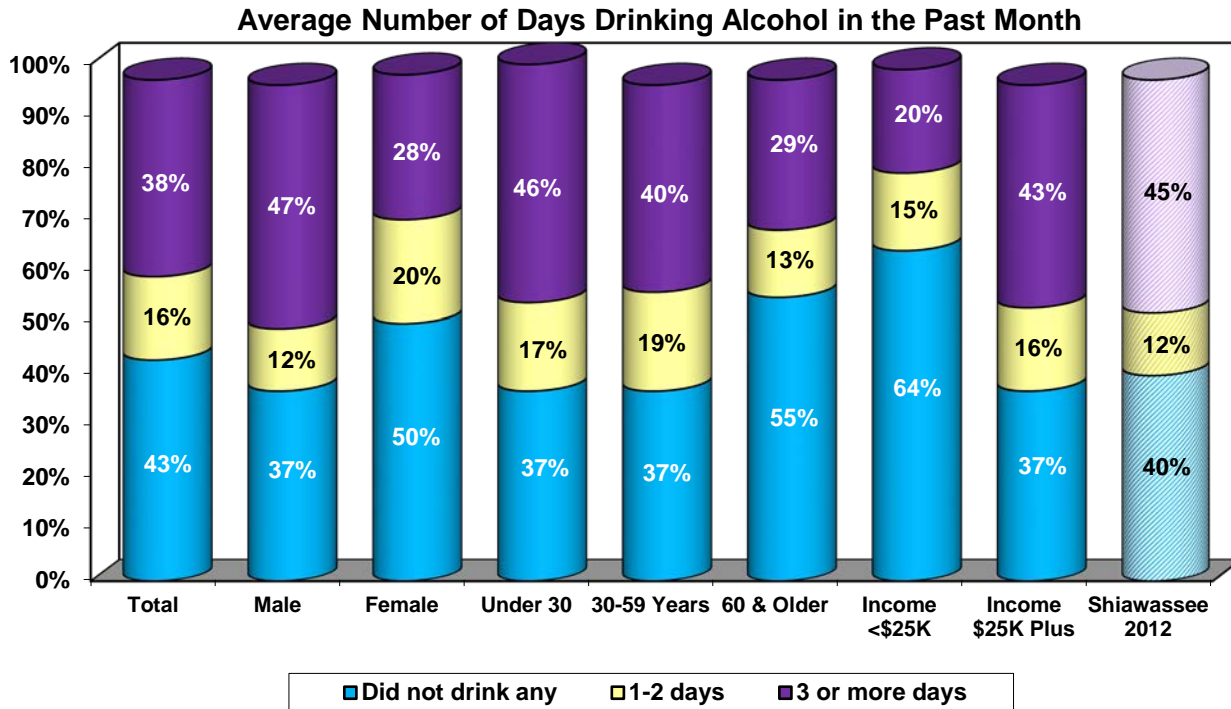
54% of Shiawassee County adults had at least one alcoholic drink in the past month.

Adult Alcohol Consumption

- In 2016, 54% of the Shiawassee County adults had at least one alcoholic drink in the past month, increasing to 63% of those under the age of 30. The 2014 BRFSS reported current drinker prevalence rates of 57% for Michigan and 53% for the U.S.
- Approximately one-in-nine (11%) adults were considered frequent drinkers (drank on an average of three or more days per week).
- Of those who drank, Shiawassee County adults drank 3.3 drinks on average, increasing to 4.2 drinks for those with incomes less than \$25,000.
- 46% of current drinkers reported they had five or more alcoholic drinks (for males) or 4 or more drinks (for females) on an occasion in the last month and would be considered binge drinkers by definition.
- Nearly one-fourth (23%) Shiawassee County adults were considered binge drinkers. The 2014 BRFSS reported binge drinking rates of 19% for Michigan and 16% for the U.S.
- 4% of adults reported driving after having perhaps too much alcohol to drink, increasing to 7% of males.
- Shiawassee County adults experienced the following in the past six months: drove a vehicle or other equipment after having any alcoholic beverage (7%), drank more than they expected (5%), used prescription drugs while drinking (4%), continued to drink despite problems caused by drinking (1%), gave up other activities to drink (1%), spent a lot of time drinking (1%), tried to quit or cut down but could not (1%), drank more to get the same effect (<1%), drank to ease withdrawal symptoms (<1%), and failed to fulfill duties at home or work (<1%).

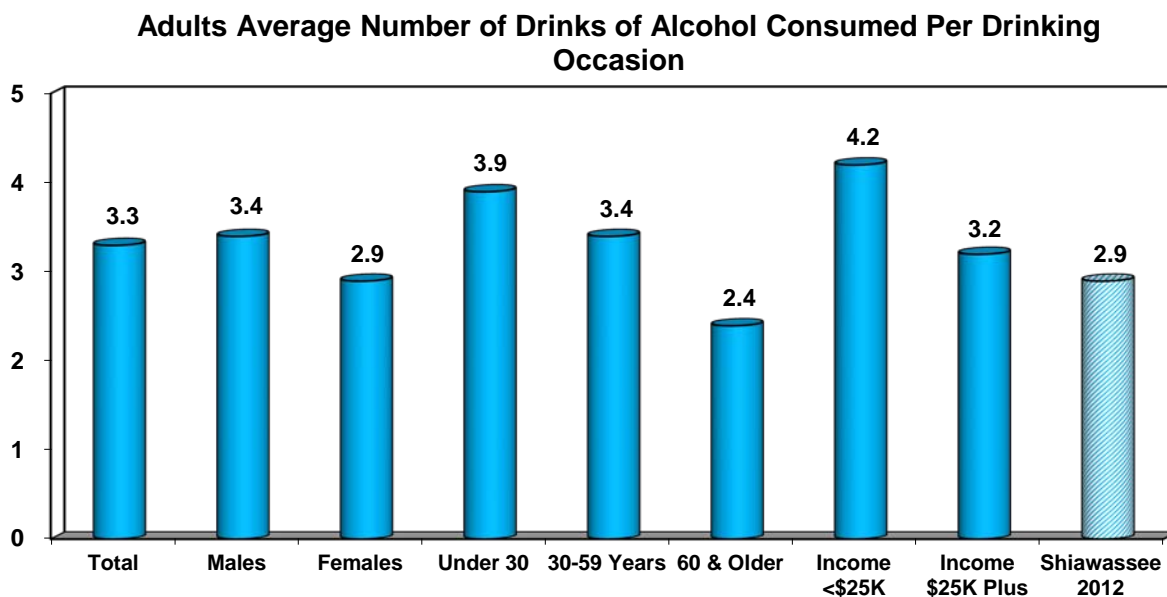
Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Drank alcohol at least once in past month	50%	54%	57%	53%
Binge drinker (drank 5 or more drinks for males and 4 or more for females on an occasion)	20%	23%	19%	16%

The following graphs show the percentage of Shiawassee County adults consuming alcohol and the amount consumed on average. Examples of how to interpret the information shown on the first graph includes: 43% of all Shiawassee County adults did not drink alcohol, 37% of Shiawassee County males did not drink, and 50% of adult females reported they did not drink.



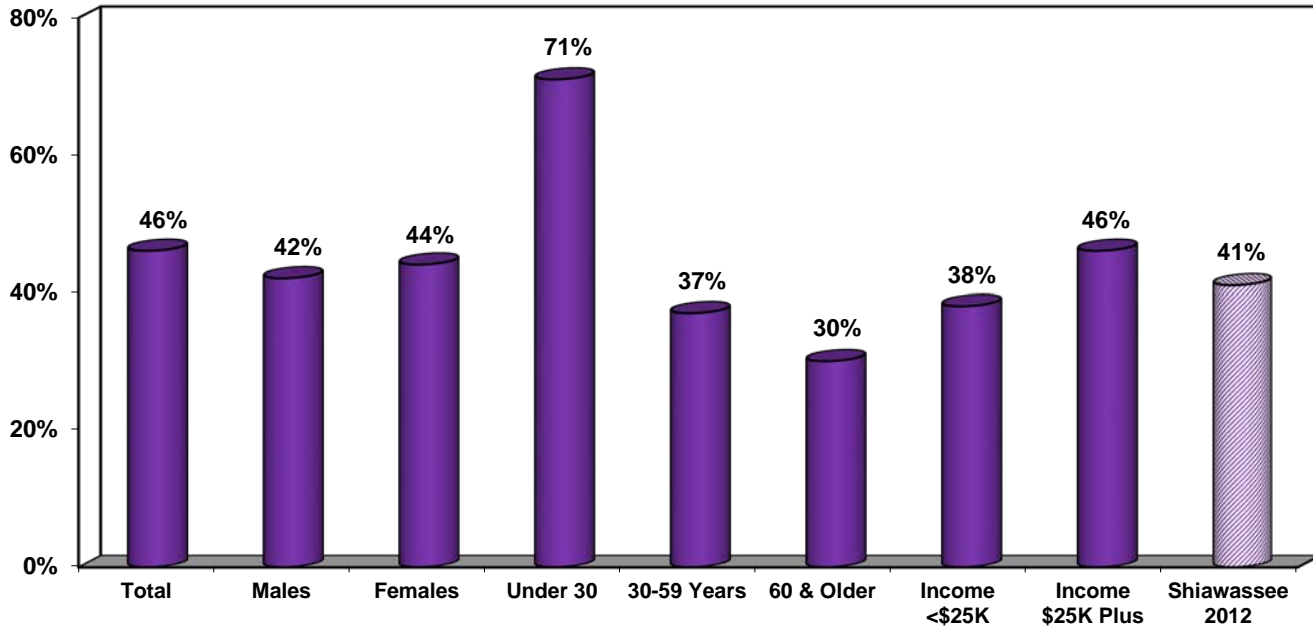
Percentages may not equal 100% as some respondents answered "don't know"

11% of Shiawassee County adults were considered frequent drinkers (drank on an average of three or more days per week).



The following graphs show the percentage of Shiawassee County drinkers who binge drank in the past month and a comparison of Shiawassee County binge drinkers with Michigan and U.S.

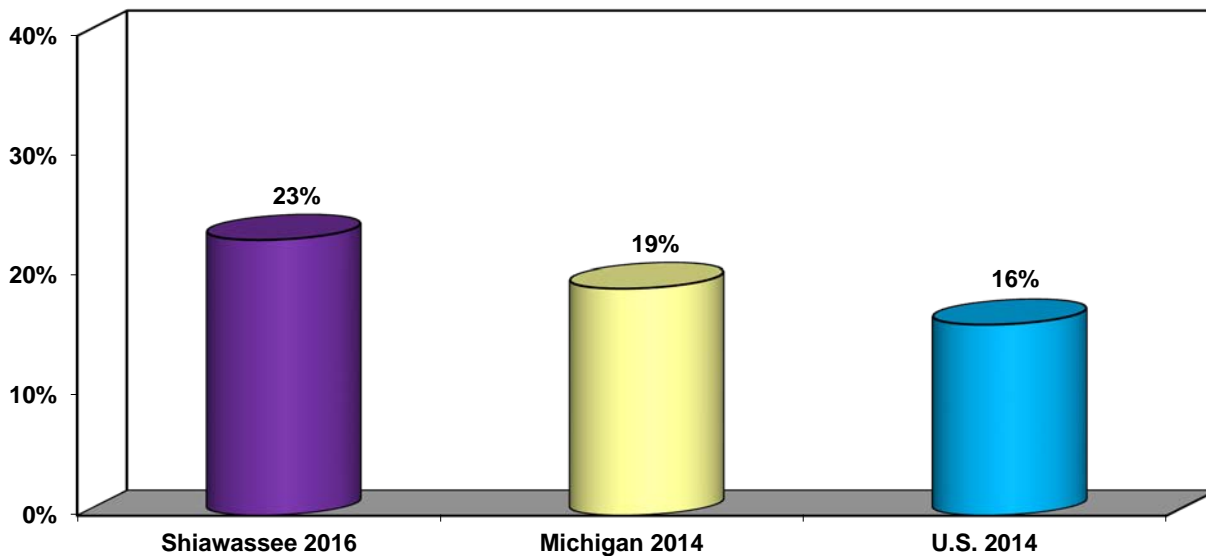
Shiawassee County Adult Drinkers Who Binge Drank in Past Month*



**Based on adults who have drunk alcohol in the past month. Binge drinking is defined as having five or more drinks (for males) or four or more drinks (for females) on an occasion. Adults must have reported drinking five or more drinks (for males) or four or more drinks (for females) on an occasion at least once in the previous month.*

4% of Shiawassee County adults reported driving after having perhaps too much to drink.

Adult Binge Drinkers*



(Source: 2013 BRFSS, 2016 Shiawassee County Health Assessment)

**Based on all adults. Binge drinking is defined as males having five or more drinks on an occasion, females having four or more drinks on one occasion.*

The following table shows the Shiawassee County, and Michigan motor vehicle accident statistics.

	City of Owosso 2015	Shiawassee County 2015	Michigan 2015
Total Crashes	222	1,897	297,023
Fatal Crashes	1	8	893
Injury Crashes	65	318	54,008
Property Damage Only	156	1,571	242,122
Deaths	1	8	963
Total Non-Fatal Injuries	89	433	74,157
Interstate Crashes	0	220	38,036
State Route Crashes	118	576	85,944
Local Street Crashes	104	1,101	173,043
Alcohol-Involved Total Crashes	12	79	9,537
Alcohol-Related Fatal Crashes	N/A	4	271
Alcohol-Related Injury Crashes	N/A	30	3,697
Alcohol-Related Property Damage Only	N/A	45	5,569
Alcohol-Related Deaths	N/A	4	303
Alcohol-Related Injuries	N/A	36	5,232
Drug-Involved Total Crashes	3	12	2,227
Deer-Involved Total Crashes	8	783	47,002

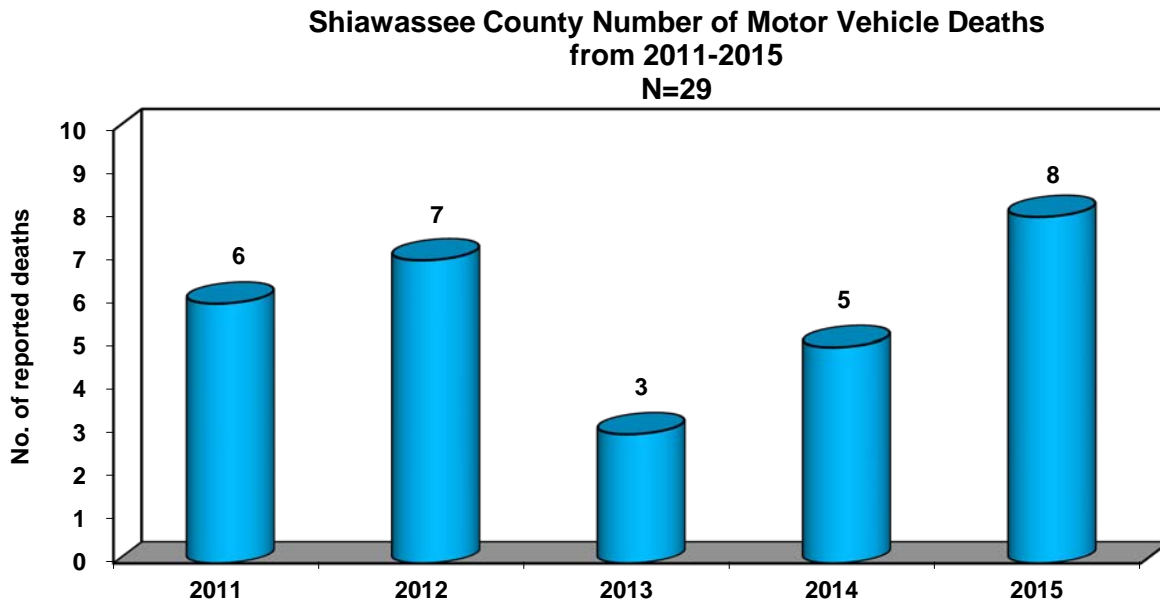
N/A – Data is not available

(Source: Michigan Office of Highway Safety Planning Crash Reports, 2015 Traffic Crash Facts)

Motor Vehicle Accidents

The following graphs show number of Shiawassee County deaths due to motor vehicle accidents

- From 2011-2015, there were a total of 29 motor vehicle deaths.



(Source: MTCF, Michigan Traffic Crash Facts)

Impaired Driving

- Every day, almost 28 people in the United States die in motor vehicle crashes that involve an alcohol-impaired driver. This amounts to one death every 53 minutes.
- The annual cost of alcohol-related crashes totals more than \$44 billion.
- In 2014, 9,967 people were killed in alcohol-impaired driving crashes, accounting for nearly one-third (31%) of all traffic-related deaths in the United States.
- Of the 1,070 traffic deaths among children ages 0 to 14 years in 2014, 209 (19%) involved an alcohol-impaired driver.
- In 2014, over 1.1 million drivers were arrested for driving under the influence of alcohol or narcotics.

(Source: CDC, Injury Prevention & Control: Motor Vehicle Safety, April 15, 2016,
http://www.cdc.gov/motorvehiclesafety/impaired_driving/impaired-driv_factsheet.html)

Adult | DRUG USE

Key Findings

In 2016, 9% of Shiawassee County adults had used marijuana during the past 6 months. 16% of adults had used medication not prescribed for them or took more than prescribed to feel good or high and/or more active or alert during the past 6 months.

Adult Drug Use

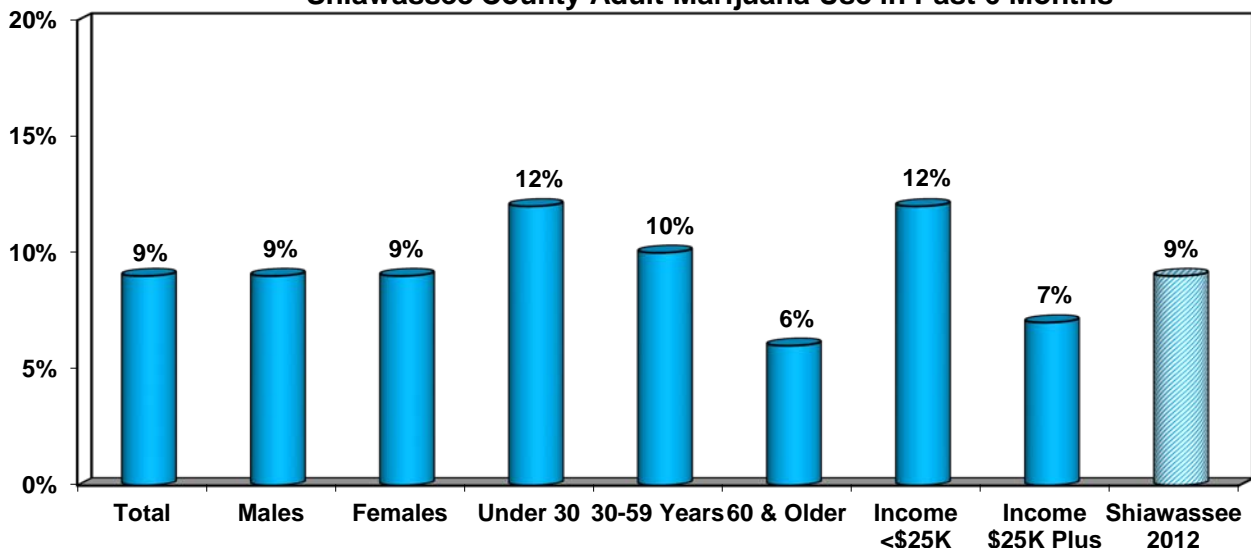
- 9% of Shiawassee County adults had used marijuana in the past 6 months, increasing to 12% of those with incomes less than \$25,000 and under the age of 30.
- 4% of Shiawassee County adults reported using other recreational drugs such as cocaine, synthetic marijuana/K2, heroin, LSD, inhalants, Ecstasy, bath salts, and methamphetamines.
- When asked about their frequency of marijuana and other recreational drug use in the past six months, 48% of Shiawassee County adults who used drugs did so almost every day, and 15% did so less than once a month.
- 16% of adults had used medication not prescribed for them or they took more than prescribed to feel good or high and/or more active or alert during the past 6 months, increasing to 27% of those with incomes less than \$25,000.
- When asked about their frequency of medication misuse in the past six months, 32% of Shiawassee County adults who used these drugs did so almost every day, and 26% did so less than once a month.
- Shiawassee County adults obtained these medications from the following: primary care physician (62%), free from friend or family member (31%), multiple doctors (9%), bought from friend of family member (7%), bought from drug dealer (3%), and ER or urgent care doctor (3%).
- Adults used the following over-the-counter drugs in a way that was not intended during the past 6 months: cold and cough medicine (9%), sleeping pills (3%), weight loss or diet pills (1%), energy boosters (<1%), motion sickness pills (<1%), and other (<1%).
- 2% of Shiawassee County adults have used a program or service to help with drug problems for either themselves or a loved one. Reasons for not using such a program included: had not thought of it (4%), did not want to get in trouble (1%), could not afford to go (<1%), did not know how to find a program (<1%), did not want to miss work (<1%), fear (<1%), program not available (<1%), and other reasons (8%). 74% of adults indicated they did not need a program or service to help with drug problems.
- Shiawassee County adults indicated they did the following with their unused prescription medication: took as prescribed (16%), kept it (14%), threw it in the trash (13%), flushed it down the toilet (10%), took it to the Medication Collection program (10%), took it back on Drug Take Back Days (5%), took it to Sheriff's Office (5%), kept in a locked cabinet (4%), took it to Red Barrel (2%), traded it (1%), gave it away (<1%), and some other destruction method (5%).

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Adults who used marijuana in the past 6 months	9%	9%	N/A	N/A
Adults who used recreational drugs in the past 6 months	1%	4%	N/A	N/A
Adults who misused medications in the past 6 months	9%	16%	N/A	N/A

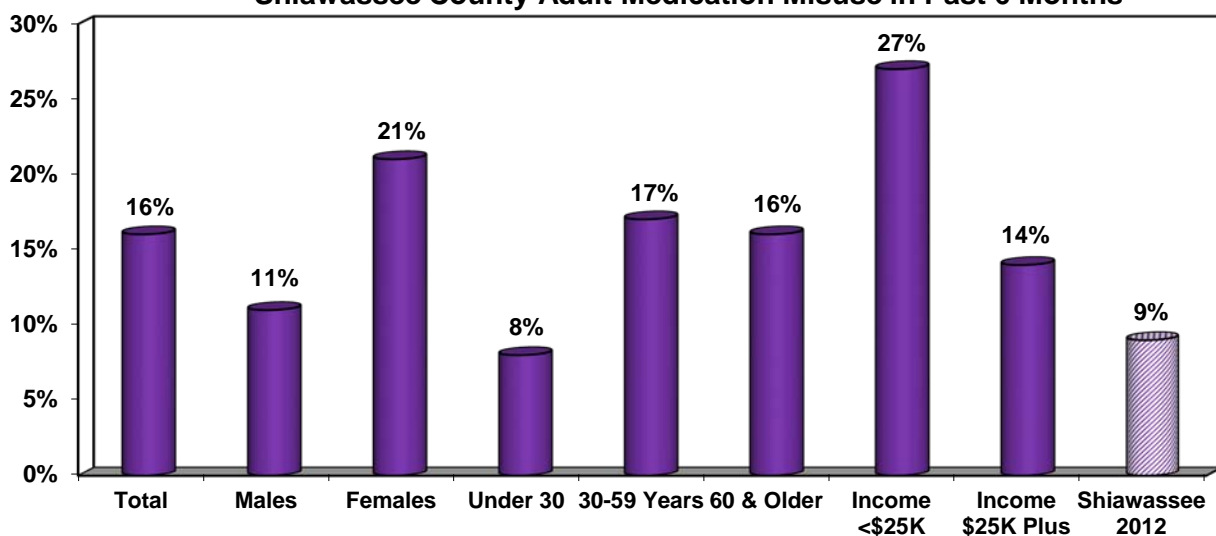
N/A – Not available

The following graphs are data from the 2016 Shiawassee County Health Assessment indicating adult marijuana use in the past six months and medication misuse in the past six months. Examples of how to interpret the information include: 9% of all Shiawassee County adults used marijuana in the past six months, 12% of adults under the age of 30 were current users, and 12% of adults with incomes less than \$25,000 were current users.

Shiawassee County Adult Marijuana Use in Past 6 Months



Shiawassee County Adult Medication Misuse in Past 6 Months



Abuse of Prescription (Rx) Drugs

- Young adults (age 18 to 25) are the biggest abusers of prescription (Rx) opioid pain relievers, ADHD, stimulants, and anti-anxiety drugs.
- Reasons for abusing these drugs include: getting high, relieving pain, studying better, dealing with problems, losing weight, feeling better, increasing alertness, and having a good time with friends.
- In 2014, more than 1,700 young adults died from prescription drug overdoses. This was a 4-fold increase from 1999.
- Among young adults, for every death due to Rx drug overdose, there were 22 treatment admissions and 117 emergency room visits.

(Source: National Institute on Drug Abuse, Abuse of Prescription (Rx) Drugs Affects Young Adults Most, February 2016, from: <http://www.drugabuse.gov/related-topics/trends-statistics/infographics/abuse-prescription-rx-drugs-affects-young-adults-most>)

Heroin

- Heroin is an opioid drug that is synthesized from morphine, a naturally occurring substance extracted from the seed pod of the Asian opium poppy plant.
- In 2011, 4.2 million Americans aged 12 or older had used heroin at least once in their lives.
- It is estimated that about 23% of individuals who use heroin become dependent on it.
- Heroin overdoses frequently involve a suppression of breathing. This can affect the amount of oxygen that reaches the brain, a condition called hypoxia.
- Heroin abuse is associated with a number of serious health conditions, including fatal overdose, spontaneous abortion, and infectious diseases like hepatitis and HIV.
- Chronic users may develop collapsed veins, infection of the heart lining and valves, abscesses, constipation and gastrointestinal cramping, and liver or kidney disease.

(Source: National Institute on Drug Abuse, Drug Facts: Heroin, October 2014, from: <http://www.drugabuse.gov/publications/drugfacts/heroin>)

Adult | WOMEN'S HEALTH

Key Findings

In 2016, nearly two-thirds (64%) of Shiawassee County women over the age of 40 reported having a mammogram in the past year. 57% of Shiawassee County women ages 19 and over had a clinical breast exam and 36% had a Pap smear to detect cancer of the cervix in the past year. The Health Assessment determined that 2% of women survived a heart attack and 4% survived a stroke at some time in their life. Nearly one-third (31%) had high blood pressure, 38% had high blood cholesterol, 42% were obese, and 17% were identified as smokers, known risk factors for cardiovascular diseases.

Women's Health Screenings

- In 2016, 64% of women had a mammogram at some time in their life and nearly half (45%) had this screening in the past year.
- Nearly two-thirds (64%) of women ages 40 and over had a mammogram in the past year and 78% had one in the past two years. The 2014 BRFSS reported that 73% of women 40 and over in the U.S. and 76% in Michigan, had a mammogram in the past two years.
- Most (91%) Shiawassee County women have had a clinical breast exam at some time in their life and 57% had one within the past year. Almost three-fourths (72%) of women ages 40 and over had a clinical breast exam in the past two years. The 2010 BRFSS reported that 77% of women 40 and over in the U.S. and 80% in Michigan, had a clinical breast exam in the past two years.
- This assessment has identified that 83% of Shiawassee County women have had a Pap smear at some time in their life and 36% reported having had the exam in the past year. 66% of women had a pap smear in the past three years. The 2014 BRFSS indicated that 75% of U.S. and Michigan women had a pap smear in the past three years.

Pregnancy

- 9% of Shiawassee County women had been pregnant in the past 5 years.
- During their last pregnancy, Shiawassee County women: took a multivitamin (64%), got a prenatal appointment in the first 3 months (57%), received WIC services (43%), took folic acid during pregnancy (43%), took folic acid pre-pregnancy (36%), got a dental exam (29%), experienced perinatal depression (14%), and used marijuana (14%).
- In the past 5 years, mothers breastfed their child: more than 9 months (20%), 6 to 9 months (20%), 4 to 6 months (2%), 7 weeks to 3 months (9%), 3 to 6 weeks (9%), 2 weeks or less (4%), and never breastfed (36%). Half (50%) of those with income less than \$25,000 had never breastfed their child.

Shiawassee County Female Leading Causes of Death, 2014

1. Heart Diseases (25% of all deaths)
2. Cancers (22%)
3. Alzheimer's (7%)
4. Chronic Lower Respiratory Diseases (6%)
5. Stroke (4%)

(Source: CDC Wonder, 2014)

Michigan Female Leading Causes of Death, 2014

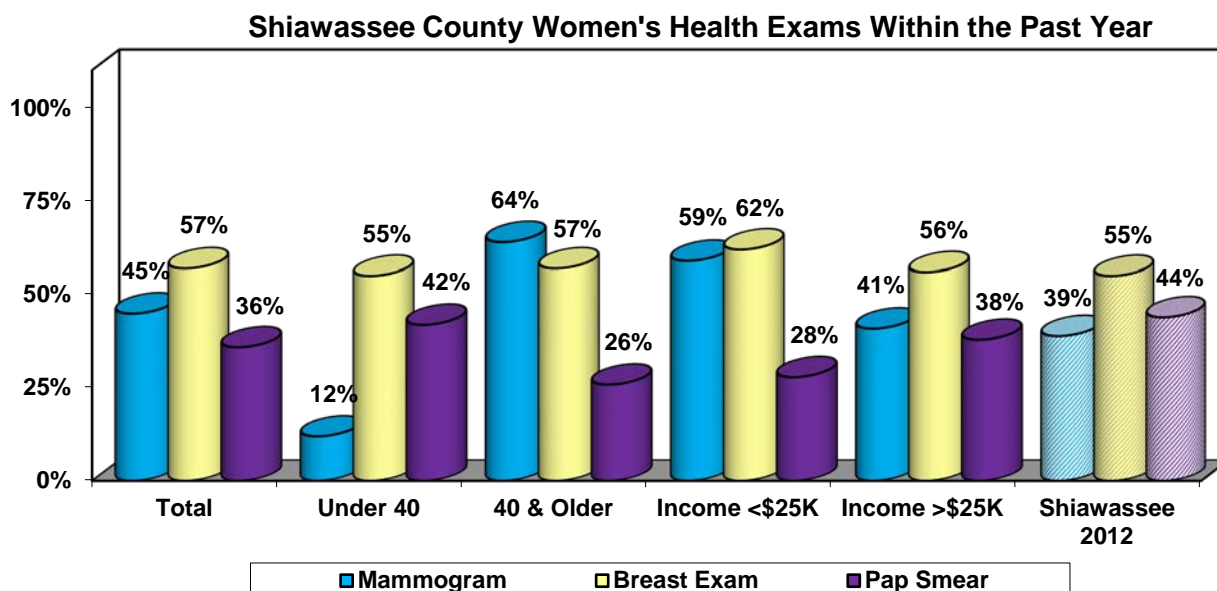
1. Heart Diseases (25% of all deaths)
2. Cancers (22%)
3. Chronic Lower Respiratory Diseases (6%)
4. Stroke (6%)
5. Alzheimer's disease (5%)

(Source: CDC Wonder, 2014)

Women's Health Concerns

- Women used the following as their usual source of services for female health concerns: family physician/nurse practitioner, gynecologist or physician's assistant-outside Shiawassee County (38%), family physician/nurse practitioner, gynecologist or physician's assistant-inside Shiawassee County (23%), Memorial Healthcare (12%), multiple sources (11%), Shiawassee Community Health Center (1%), Shiawassee County Medical Group After Hours (1%), and some other place (5%). 10% indicated they did not have a usual source of services for female health concerns.
- Shiawassee County women have experienced the following: menopause (46%), premenstrual syndrome (27%), incontinence (16%), osteoporosis (14%), perimenopause (11%), and hormone replacement therapy (10%).
- In 2016, the health assessment determined that 2% of women had survived a heart attack and 4% had survived a stroke at some time in their life.
- In 2014, major cardiovascular diseases (heart disease and stroke) accounted for 29% of all female deaths in Shiawassee County (*Source: CDC Wonder, 2014*).
- Major risk factors for cardiovascular disease include smoking, obesity, high blood cholesterol, high blood pressure, and diabetes. In Shiawassee County the 2016 Health Assessment has identified that:
 - 71% were overweight or obese (60% Michigan, 2014 BRFSS)
 - 38% were diagnosed with high blood cholesterol (38% Michigan, 2013 BRFSS)
 - 31% were diagnosed with high blood pressure (32% Michigan, 2013 BRFSS)
 - 17% of all women were current smokers (19% Michigan, 2014 BRFSS)
 - 8% had been diagnosed with diabetes (10% Michigan, 2014 BRFSS)

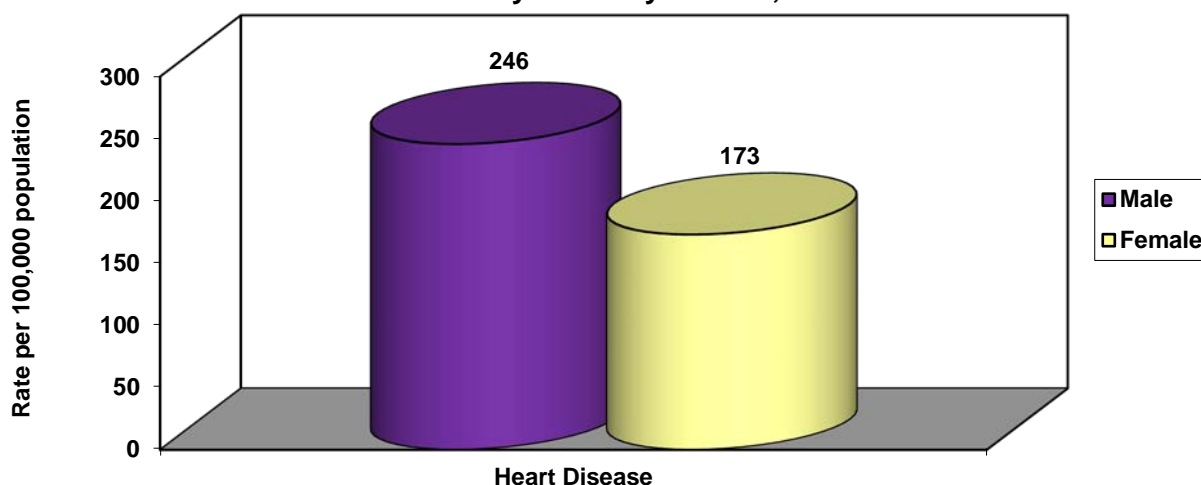
The following graph shows the percentage of Shiawassee County female adults that had various health exams in the past year. Examples of how to interpret the information shown on the graph includes: 45% of Shiawassee County females had a mammogram within the past year, 57% had a clinical breast exam, and 36% had a Pap smear.



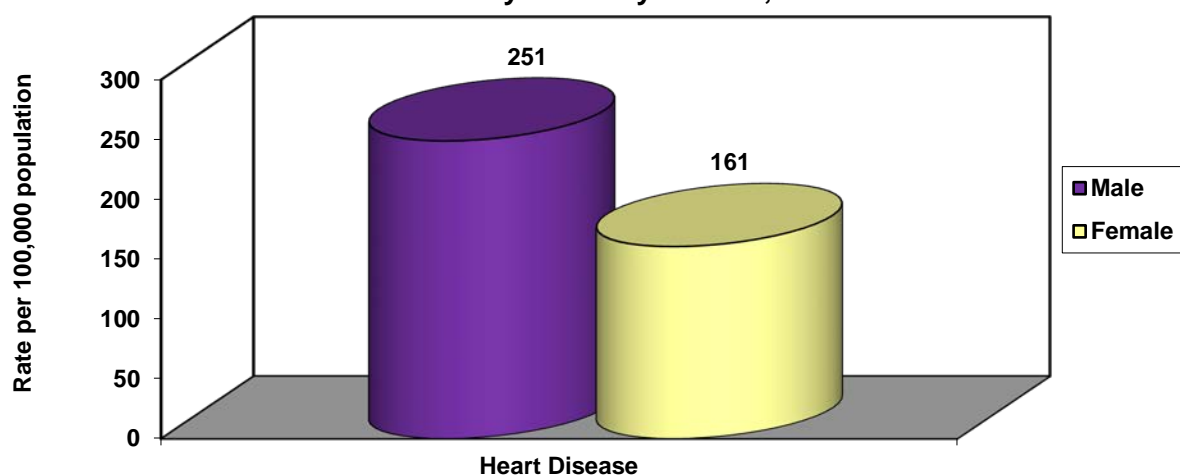
The following graphs show the Shiawassee County and Michigan age-adjusted mortality rates per 100,000 population for cardiovascular diseases. The graphs show:

- In 2014, the Shiawassee County and Michigan female age-adjusted mortality rates were lower than the male rates for both heart disease and stroke.
- The Shiawassee County female heart disease mortality rate was higher than the Michigan female rate in 2014.

Shiawassee County Age-Adjusted Heart Disease and Stroke Mortality Rates By Gender, 2014



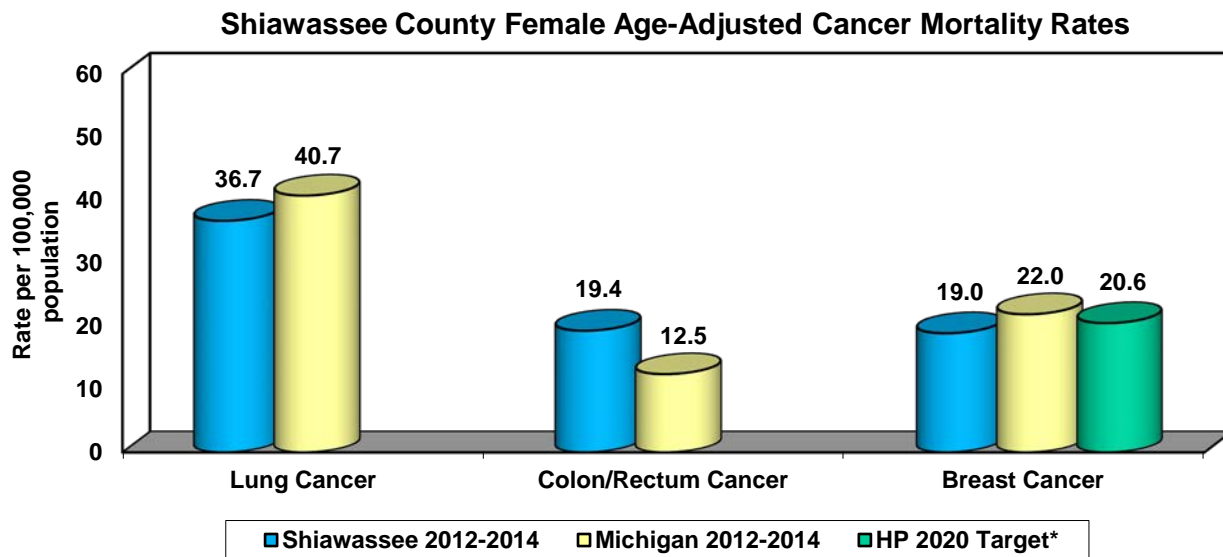
Michigan Age-Adjusted Heart Disease and Stroke Mortality Rates By Gender, 2014



(Source for graphs: CDC Wonder, 2014)

The following graph shows the Shiawassee County age-adjusted cancer mortality rates per 100,000 population for women with comparison to Healthy People 2020 objective when available. The graphs show:

- From 2012-2014, the Shiawassee County age-adjusted mortality rate for female lung cancer was lower than the Michigan rate.
- From 2012-2014, the Shiawassee County age-adjusted breast cancer mortality rate was less than the Michigan rate and the Healthy People 2020 target objective.



**Note: Healthy People 2020 target rates are not gender specific; Healthy People 2020 Targets may not be available for all diseases.*

(Source: CDC Wonder, 2012-2014 and Healthy People 2020)

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Had a clinical breast exam in the past two years (age 40 & over)	78%	72%	80%*	77%*
Had a mammogram in the past two years (age 40 & over)	77%	78%	76%	73%
Had a pap smear in the past three years	79%	66%	75%	75%

*BRFSS2010

Adult | PREVENTIVE MEDICINE AND HEALTH SCREENINGS

Key Findings

Nearly three-fourths (73%) of adults ages 65 and older had a pneumonia vaccination at some time in their life. More than three-fifths (62%) of adults ages 50 and older had a colonoscopy/ sigmoidoscopy within the past 5 years.

Preventive Medicine

- More than half (51%) of Shiawassee County adults had a flu vaccine during the past 12 months.
- Of those who had a flu vaccine, 97% had the shot and 3% had the nasal spray.
- 77% of Shiawassee County adults ages 65 and older had a flu vaccine in the past 12 months. The 2014 BRFSS reported that 61% of U.S. and 58% of Michigan adults ages 65 and older had a flu vaccine in the past year.
- Adults did not get a flu vaccine for the following reasons: did not need it (25%), got sick from it (7%), did not work (6%), time (3%), cost (1%), insurance would not pay for it (<1%), and other reasons (10%).
- Nearly one-third (31%) of adults have had a pneumonia shot in their life, increasing to 73% of those ages 65 and older. The 2013 BRFSS reported that 70% of U.S. and 69% of Michigan adults ages 65 and older had a pneumonia shot in their life.
- Shiawassee County adults have had the following vaccines: tetanus booster (including Tdap) in the past 10 years (62%), MMR in their lifetime (61%), chicken pox in their lifetime (45%), pneumonia vaccine in their lifetime (31%), Hepatitis B (27%), pertussis vaccine in the past 10 years (21%), Hepatitis A (20%), Zoster (shingles) vaccine in their lifetime (11%), and human papillomavirus vaccine in their lifetime (8%).

Reasons Some Adults Still Need Vaccines

Some adults incorrectly assume that the vaccines they received as children will protect them for the rest of their lives. Generally this is true, except that:

- Some adults were never vaccinated as children.
- Newer vaccines were not available when some adults were children.
- Immunity can begin to fade over time.
- As we age, we become more susceptible to serious disease caused by common infections (such as flu and pneumococcus).

(Source: CDC, Immunization Schedules, updated 2-29, 2016, <http://www.cdc.gov/vaccines/schedules/easy-to-read/adult.html>)

Preventive Health Screenings and Exams

- More than three-fifths (62%) of adults ages 50 and older had a colonoscopy or sigmoidoscopy in the past 5 years.
- Adults had the following preventive screenings in the past two years: vision (66%), hearing (26%), skin cancer (18%), and osteoporosis (12%).
- In the past year, 64% of Shiawassee County women ages 40 and older have had a mammogram.
- See the Women's Health Section for further mammogram, clinical breast exam, and Pap smear screening test information for Shiawassee County adults.

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Had a pneumonia vaccination (ages 65 and older)	66%	73%	69%	70%
Had a flu vaccine in the past year (ages 65 and older)	40%	77%	58%	61%

Shiawassee County Adults Having Discussed Healthcare Topics With Their Healthcare Professional in the Past 12 Months

HEALTHCARE TOPICS	Total 2012	Total 2016
Physical Activity or Exercise	40%	49%
Weight, Dieting or Eating Habits	39%	43%
Immunizations	20%	36%
Self-Breast or Self-Testicular Exam	N/A	32%
Depression, Anxiety, or Emotional Problems	18%	27%
Significance of Family History	21%	25%
Safe Use of Prescription Medication	N/A	22%
Injury Prevention Such As Safety Belt Use & Helmet Use	12%	14%
Alcohol Use	11%	12%
Quitting Smoking	11%	12%
Alternative Pain Therapy	N/A	11%
Alcohol Use When Taking Prescription Drugs	10%	10%
Safe Use of Opiate-Based Medication	N/A	8%
Sexual Practices Including Family Planning, STDs, AIDS, & Condom Use	6%	6%
Domestic Violence	2%	5%
Drug Abuse	5%	4%

Shiawassee County Adult Health Screening Results

GENERAL SCREENING RESULTS	Total 2012	Total 2016
Diagnosed with High Blood Cholesterol	37%	43%
Diagnosed with High Blood Pressure	29%	33%
Diagnosed with Diabetes	11%	10%
Diagnosed with a Heart Attack	4%	4%
Diagnosed with a Stroke	2%	3%

(Percentages based on all Shiawassee County adults surveyed)

Healthy People 2020

Immunization and Infectious Diseases (IID) - Pneumonia Vaccination

Objective	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014	Healthy People 2020 Target
IID-13.1: Increase the percentage of non-institutionalized high-risk adults aged 65 years and older who are vaccinated against pneumococcal disease	66%	73%	69%	70%	90%

**U.S. baseline is age-adjusted to the 2000 population standard*

(Sources: Healthy People 2020 Objectives, 2014 BRFSS, 2016 Shiawassee County Health Assessment)

Who Should Get a Yearly Flu Shot?

The following groups are recommended to get a yearly flu vaccine:

- All persons aged 6 months and older should be vaccinated annually.
- When vaccine supply is limited, vaccination efforts should focus on delivering vaccination to persons who:
 - Are aged 6 months through 4 years.
 - Are aged 50 years and older.
 - Have chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus).
 - Are or will be pregnant during the influenza season.
 - Are American Indians/Alaska Natives.
 - Are morbidly obese (body-mass index is 40 or greater).
 - Are health-care personnel.
 - Are household contacts and caregivers of children aged younger than 5 years and adults aged 50 years and older, with particular emphasis on vaccinating contacts of children younger than 6 months.
 - Are household contacts and caregivers of persons with medical conditions that put them at higher risk for severe complications from influenza.

(Source: CDC, Seasonal Influenza (Flu), Who Should Get Vaccinated Against Influenza, Updated in 2014, from: <http://www.cdc.gov/flu/protect/whoshouldvax.htm>)

Adult | SEXUAL BEHAVIOR AND PREGNANCY OUTCOMES

Key Findings

In 2016, nearly two-thirds (66%) of Shiawassee County adults had sexual intercourse. Four percent of adults had more than one partner. Prevalence estimates suggest that young people aged 15-24 years acquire half of all new STDs and that 1 in 4 sexually active adolescent females have an STD, such as chlamydia or human papillomavirus (HPV) (Source: CDC, STDs in Adolescents and Young Adults, 2014 STD Surveillance).

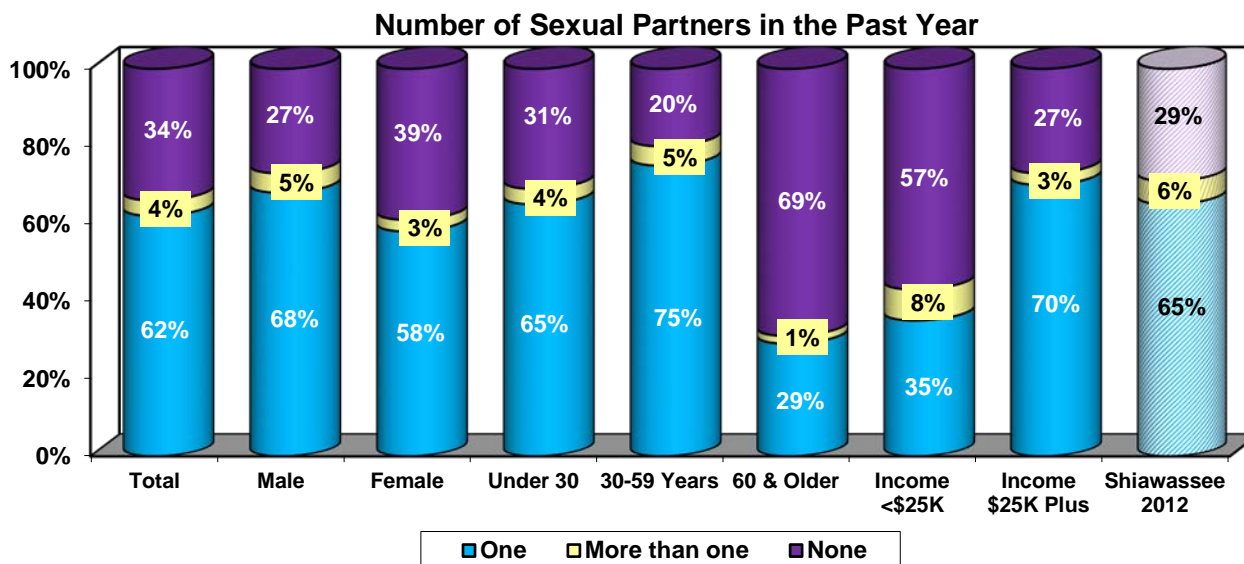
Adult Sexual Behavior

- Nearly two-thirds (66%) of Shiawassee County adults had sexual intercourse in the past year.
- 4% of adults reported they had intercourse with more than one partner in the past year, increasing to 8% of those with incomes less than \$25,000.
- Shiawassee County adults used the following methods of birth control: vasectomy (24%), hysterectomy (15%), they or their partner were too old (14%), tubes tied (13%), birth control pill (12%), abstinence (11%), condoms (9%), infertility (7%), IUD (7%), ovaries or testicles removed (4%), withdrawal (3%), contraceptive implants (1%), diaphragm (1%), shots (1%), and rhythm method (<1%).
- 7% of Shiawassee County adults were not using any method of birth control.
- The following situations applied to Shiawassee County adults in the past year: tested for an STD (4%), had anal sex without a condom (2%), had sex with someone they did not know (<1%), tested positive for Hepatitis C (<1%), tested positive for HIV (<1%), and thought they may have an STD (<1%).
- Adults were diagnosed with the following STDs in the past 5 years: chlamydia (1%), genital herpes (1%), hepatitis C (1%), and human papilloma virus (HPV) (1%).
- 14% of adults have engaged in sexual activity following alcohol or other drug use that they would not have done if sober, increasing to 27% of those under the age of 30.
- 6% of adults have been forced to have sexual activity when they did not want to, increasing to 12% of those under the age of 30. Of those who were forced to have sexual activity, 21% reported it.

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Had more than one sexual partner in past year	6%	4%	N/A	N/A

N/A – Not available

The following graph shows the sexual activity of Shiawassee County adults. Examples of how to interpret the information in the graph include: 62% of all Shiawassee County adults had one sexual partner in the last 12 months and 4% had more than one, and 68% of males had one partner in the past year.



Respondents were asked: "During the past 12 months, with how many different people have you had sexual intercourse?"

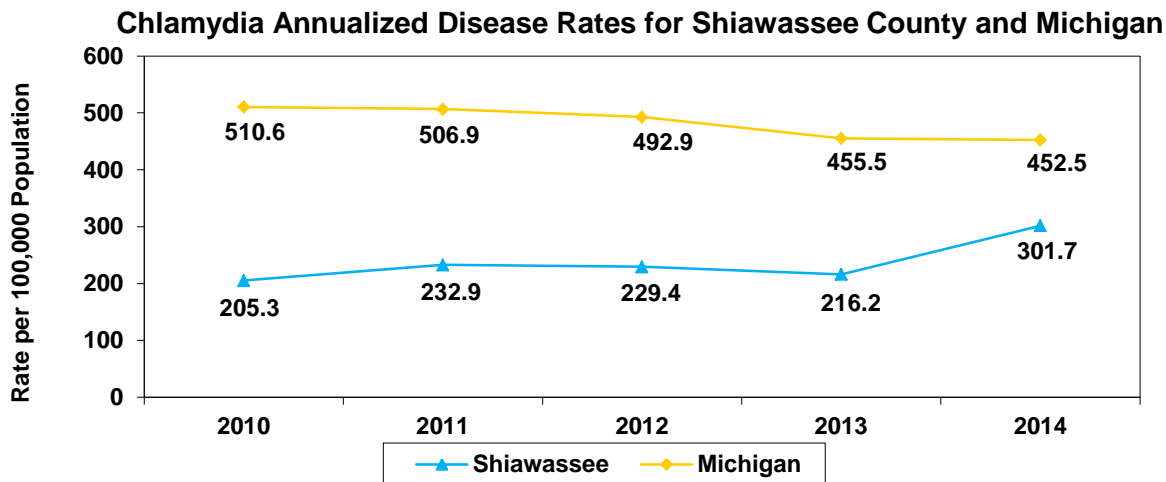
HIV in the United States

- More than 1.2 million people in the United States are living with HIV infection, and almost 1 in 8 (13%) are unaware of their infection.
- By race, African Americans face the most severe burden of HIV.
- The estimated incidence of HIV has remained stable overall in recent years, at about 50,000 new HIV infections per year.
- In 2013, an estimated 47,352 people were diagnosed with HIV infection in the United States. In that same year, an estimated 26,688 people were diagnosed with AIDS. Since the epidemic began, an estimated 1,194,039 people in the United States have been diagnosed with AIDS
- An estimated 13,712 people with an AIDS diagnosis died in 2012 and approximately 658,507 people in the United States with an AIDS diagnosis have died since the epidemic.

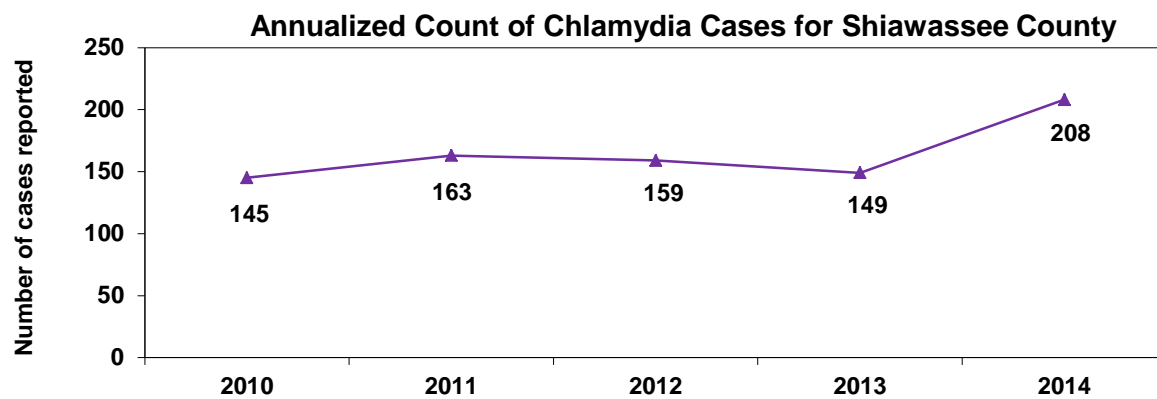
(Source: CDC, *HIV in the United States: At a Glance*, 9/29/2015, from: <http://www.cdc.gov/hiv/statistics/basics/ata glance.html>)

The following graphs show Shiawassee County chlamydia disease rates per 100,000 population updated August 6, 2015 by the Michigan Department of Health and Human Services. The graphs show:

- Shiawassee County chlamydia rates fluctuated from 2010 to 2014, but increased overall. Shiawassee County rates remained below the Michigan rates.



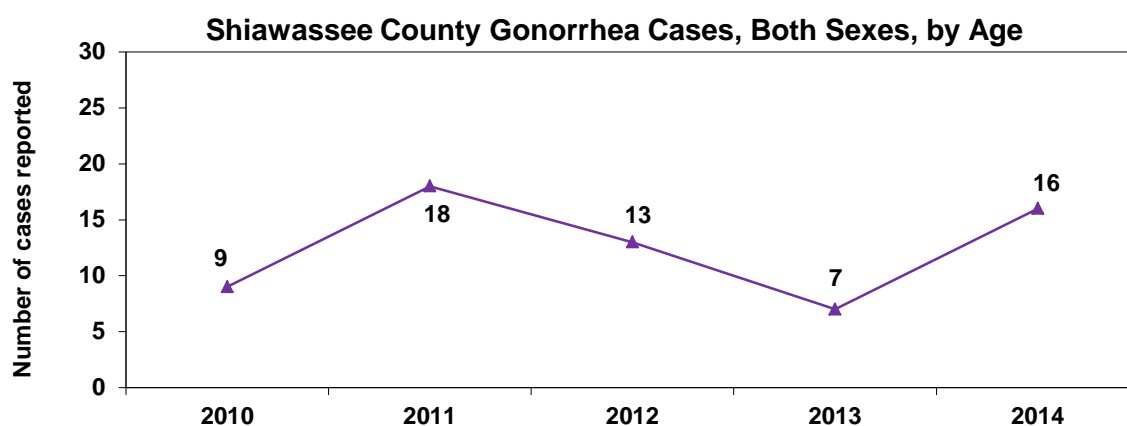
(Source for graph: Michigan Sexually Transmitted Diseases, Updated 8-6-2015)



(Source for graph: Michigan Sexually Transmitted Diseases, Updated 8-6-2015)

The following graph shows Shiawassee County gonorrhea disease cases per updated August 6, 2014 by the Michigan Department of Health and Human Services. The graph shows:

- The Healthy People 2020 objective for gonorrhea is 257 new female and 198 new male cases per 100,000 population.

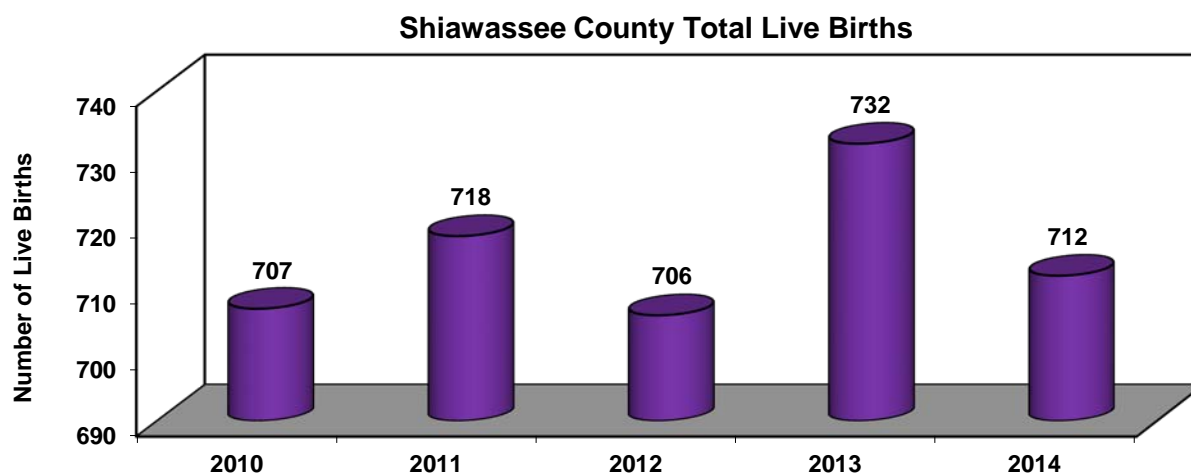


(Source for graphs: Michigan Sexually Transmitted Diseases, Updated 8-6-2014)

Pregnancy Outcomes

*Please note that the pregnancy outcomes data includes all births to adults and adolescents.

- From 2010-2014, there was an average of 715 live births per year in Shiawassee County.
- In 2014, there were a total of 712 live births in Shiawassee County.

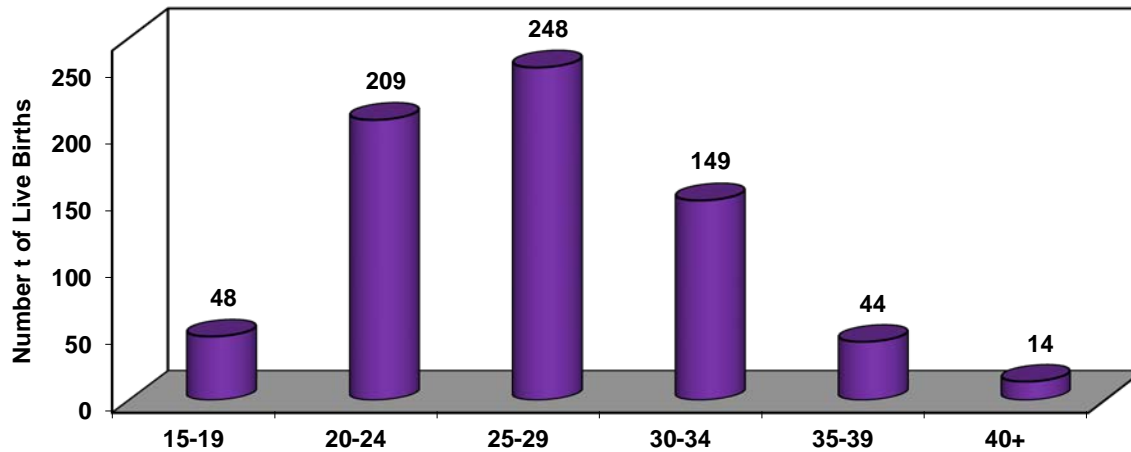


(Source for graphs: Michigan Department of Health and Human Services, Natality and Pregnancy, Updated 9-30-2015)

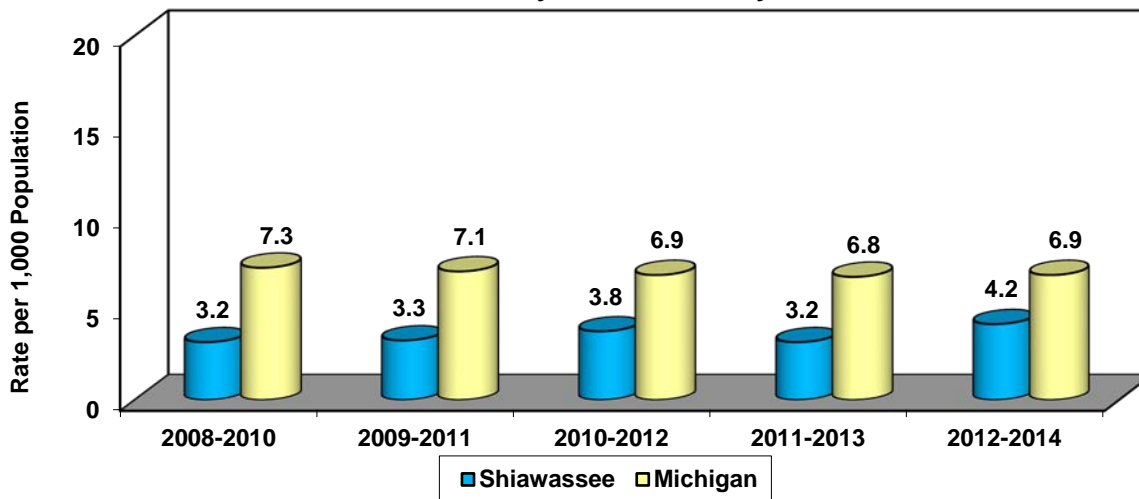
The following graphs show Shiawassee County total number of live births by age of the mother and Shiawassee County and infant mortality rates. The graphs show:

- In 2014, sixty-four percent of live births in Shiawassee County were to mothers between 20-29 years old.
- From 2012-2014, the Shiawassee County infant mortality rate was lower than the state rate.

Shiawassee County Live Births by Age of Mother in 2014



Shiawassee County Infant Mortality Rates, 2008-2012*



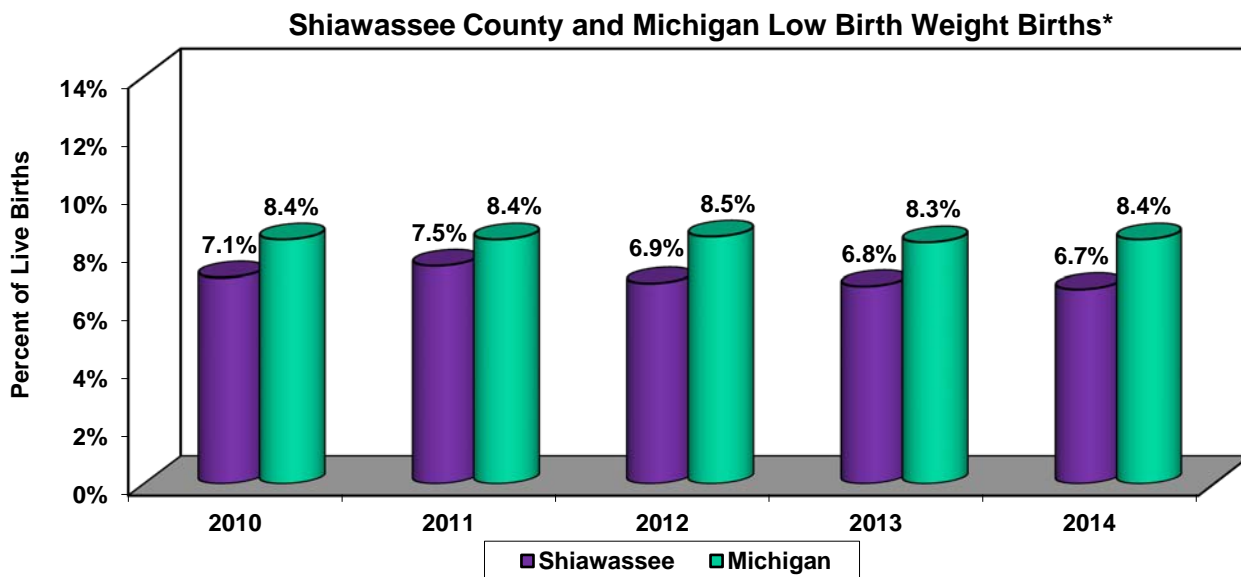
*Deaths occurring to individuals less than 1 year of age.

*The infant death rate is the number of resident infant deaths divided by total resident live births X 1,000

(Source for graphs: Michigan Department of Health and Human Services, Natality and Pregnancy)

The following graph shows Shiawassee County and Michigan low birth weight rates by the Michigan Department of Health and Human Services. The graph shows:

- From 2010-2014, the low birth weight rates for Shiawassee County were below the Michigan rates.



**Low Birth Weight is defined as weighing less than 2,500 grams or 5 pounds, 8 ounces.
(Source for graphs: Michigan Department of Health and Human Services, Natality and Pregnancy)*

Adult | QUALITY OF LIFE

Key Findings

In 2016, 28% of Shiawassee County adults were limited in some way because of a physical, mental or emotional problem.

Impairments and Health Problems

- In 2016, more than one-fourth (28%) of Shiawassee County adults were limited in some way because of a physical, mental or emotional problem (23% for Michigan and 20% for the U.S., 2014 BRFSS), increasing to 38% those ages 60 and older and 39% of those with incomes less than \$25,000.
- Among those who were limited in some way, the following most limiting problems or impairments were reported: back or neck problems (59%), chronic pain (58%), arthritis/rheumatism (55%), walking problems (37%), stress, depression, anxiety, or emotional problems (27%), sleep problems (26%), fitness level (25%), lung/breathing problems (20%), eye/vision problems (18%), tobacco dependency (18%), fractures, bone/joint injuries (17%), high blood pressure (16%), diabetes (13%), hearing problems (13%), incontinence (10%), heart problems (9%), dental problems (7%), a learning disability (7%), mental health illness/disorder (6%), stroke-related problems (6%), cancer (5%), Alzheimer's disease/dementia (3%), alcohol dependency (2%), and drug addiction (2%).
- Shiawassee County adults needed help with the following because of an impairment or health problem: yard work (10%), household chores (6%), shopping (4%), bills (3%), cooking (3%), transportation (3%), dressing (2%), getting around for other purposes (2%), bathing (1%), doing necessary business (1%), getting around the house (1%), toileting (1%), and eating (<1%).
- Shiawassee County adults were responsible for providing regular care or assistance to the following: multiple children (19%), an elderly parent or loved one (5%), a friend, family member or spouse who has a health problem (5%), children with discipline issues (4%), an adult child (3%), grandchildren (3%), a friend, family member or spouse with dementia (2%), someone with special needs (2%), a friend, family member or spouse with a mental health issue (1%), and foster children (<1%).
- Adults indicated they would have problems getting the following if they needed them today: someone to help pay their medical expenses (12%), someone to loan them \$50 (11%), someone to help them if they were sick in bed (10%), someone to accompany them to their doctor's appointments (7%), someone to take them to a clinic or doctor's office if they needed a ride (7%), someone to talk about their problems (7%), back-up childcare (4%), and someone to explain directions from their doctor (4%).
- Adults indicated they or an immediate family member had the following literacy needs: learning computer skills (7%), multiple literacy needs (4%), reading and understanding instructions (3%), and completing a job application (1%).
- 15% of adults had some sort of literacy need, increasing to 25% of those with incomes less than \$25,000.
- 35% of adults had fallen in the past year, increasing to 45% of those over the age of 60.

Preventing High Blood Pressure: Healthy Living Habits

By living a healthy lifestyle, you can help keep your blood pressure in a healthy range and lower your risk for heart disease and stroke. A healthy lifestyle includes:

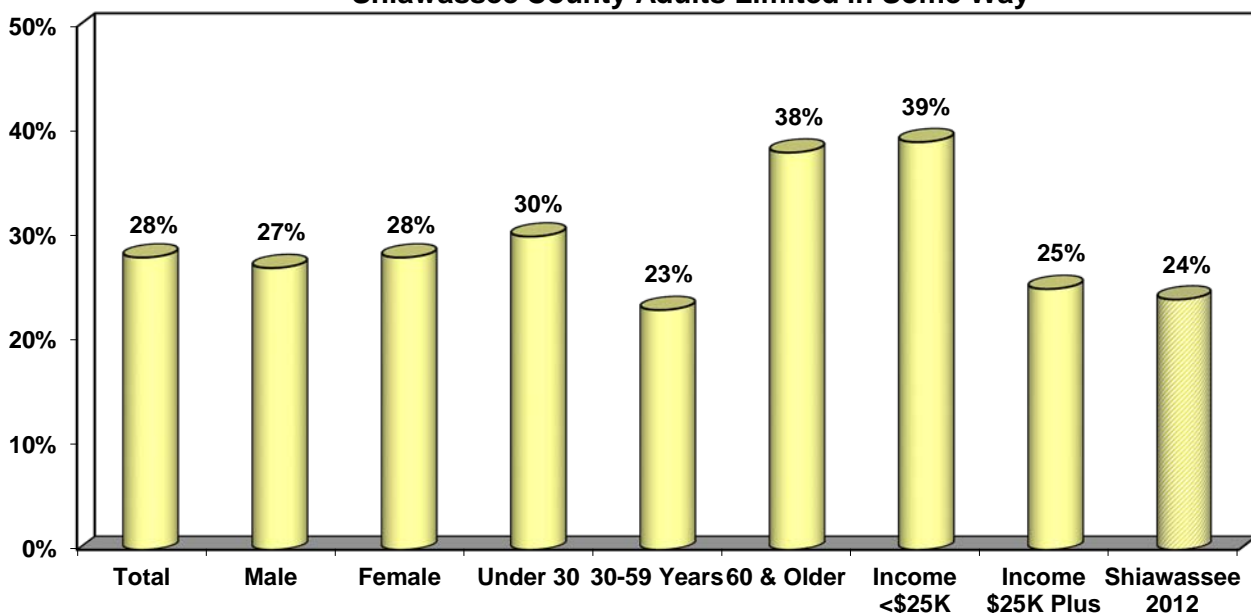
- Eating a healthy diet
- Maintaining a healthy weight
- Getting enough physical activity
- Not smoking
- Limiting alcohol use

(Source: CDC, High Blood Pressure, July 7 2014, from: http://www.cdc.gov/bloodpressure/healthy_living.htm)

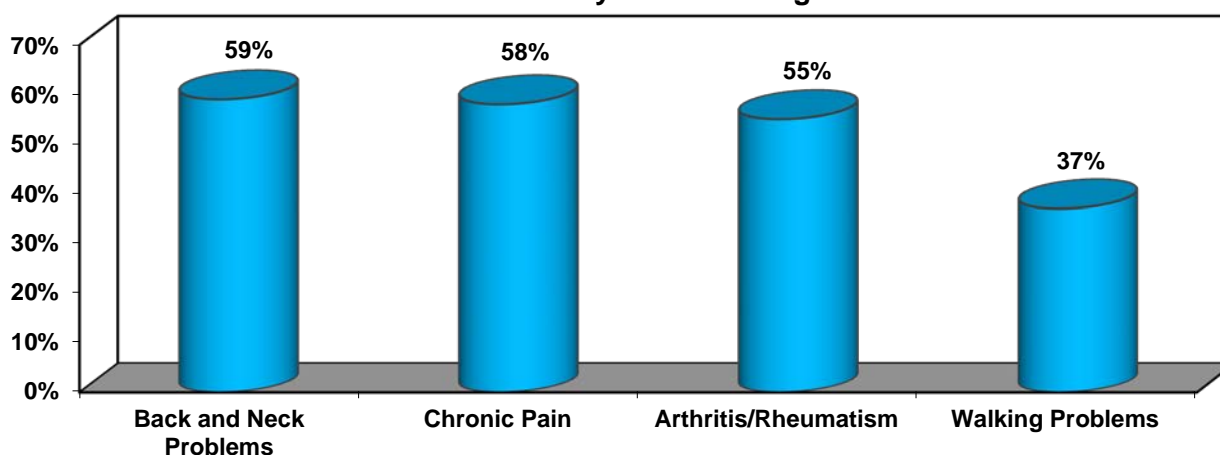
Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S 2014
Limited in some way because of a physical, mental, or emotional problem	24%	28%	23%	20%

The following graphs show the percentage of Shiawassee County adults that were limited in some way and the most limiting health problems. Examples of how to interpret the information shown on the graph include: 28% of Shiawassee County adults are limited in some way, 27% of males, and 38% of those 60 and older.

Shiawassee County Adults Limited in Some Way



Shiawassee County Most Limiting Health Problems



Healthy People 2020

Arthritis, Osteoporosis, and Chronic Back Conditions (AOCBC)

Objective	Shiawassee County 2016	Healthy People 2020 Target
AOCBC-2: Reduce the proportion of adults with doctor-diagnosed arthritis who experience a limitation in activity due to arthritis or joint symptoms	55%	36%

*U.S. baseline is age-adjusted to the 2000 population standard
(Sources: Health People 2020 Objectives, 2016 Shiawassee County Health Assessment)

Physical Activity among Adults with Disabilities

- More than 21 million adults in the United States have a disability.
- These are adults with difficulty walking or climbing stairs, hearing, seeing, or concentrating, remembering, or making decisions.
- Adults with disabilities are three times more likely to have heart disease, stroke, diabetes, or cancer than adults without disabilities.
- Aerobic physical activity can help reduce the impact of these chronic diseases, yet nearly half of all adults with disabilities get no leisure time aerobic physical activity.
- Adults with disabilities were 82% more likely to be physically active if their doctor recommended it. However, only 44% of adults with disabilities who visited a doctor in the past year received a physical activity recommendation from their doctor.
- Doctors and other health professionals should recommend physical activity, based on the 2008 Physical Activity Guidelines, to their patients with disabilities.
- Adults with disabilities should consider the following when engaging in physical activity:
 - Engage in the amount and types of physical activity that are right for them.
 - Find opportunities to increase regular physical activity in ways that meet their needs and abilities.
 - Start slowly based on their abilities and fitness level.
 - Avoid being physically inactive.
 - Know that most aerobic physical activity may need to be modified, adapted or may need additional assistance or equipment.

(Source: CDC, *Increasing Physical Activity among Adults with Disabilities*, 2014,
<http://www.cdc.gov/ncbddd/disabilityandhealth/pa.html>)

Adult | SOCIAL DETERMINANTS OF HEALTH

Key Findings

In 2016, 9% of Shiawassee County adults were abused in the past year. 54% of adults kept a firearm in or around their home.

Healthy People 2020

- Healthy People 2020 developed five key determinants as a “place-based” organizing framework. These five determinants include:
 - Economic stability
 - Education
 - Social and community context
 - Health and health care
 - Neighborhood and built environment



Economic Stability

- Shiawassee County adults received assistance for the following in the past year: food (14%), healthcare (13%), Medicare (9%), prescription assistance (9%), dental care (8%), home repair (7%), free tax preparation (5%), utilities (5%), mental illness issues (4%), employment (3%), rent/mortgage (3%), transportation (3%), legal aid services (2%), clothing (1%), credit counseling (1%), and affordable childcare (<1%). (Source: 2016 Shiawassee County Health Assessment)
- The median household income in Shiawassee County was \$47,882. The U.S. Census Bureau reports median income levels of \$49,755 for Michigan and \$53,657 for the U.S. (Source: U.S. Census Bureau, Small Area Income and Poverty Estimates, 2014).
- 15% of all Shiawassee County residents were living in poverty and 23% of children and youth ages 0-17 were living in poverty (Source: U.S. Census Bureau, Small Area Income and Poverty Estimates, 2014).
- The unemployment rate for Shiawassee County was 4.6, as of August 2016 (Source: Michigan Bureau of Labor Market Information and Strategic Initiatives, August 2016).
- There were 30,184 housing units. The owner-occupied housing unit rate was 77%. Rent in Shiawassee County cost an average of \$675 per month (Source: U.S. Census Bureau, American Community Survey, 2010-2014).

Education

- 91% of Shiawassee County adults 25 years and over had a high school diploma or higher (Source: U.S. Census Bureau, American Community Survey, 2010-2014).
- 15% of Shiawassee County adults 25 years and over had at least a bachelor's degree (Source: U.S. Census Bureau, American Community Survey, 2010-2014).

Health and Health Care

- In the past year, 6% of adults were uninsured, increasing to 7% of those with incomes less than \$25,000.
- Shiawassee County adults had the following issues regarding their healthcare coverage: deductibles were too high (27%), co-pays were too high (20%), premiums were too high (18%), could not understand their insurance plan (9%), difficulty navigating the Marketplace (6%), opted out of certain coverage because they could not afford it (5%), working with their insurance company (5%), high HSA account deductible (4%), provider/facility no longer covered (4%), service not deemed medically necessary (4%), service no longer covered (3%), limited visits (2%), mental health services limited/not covered (2%), opted out of certain coverage because they did not need it (2%).
- Shiawassee County adults had the following transportation issues when they needed health services: could not afford gas (3%), no car (3%), did not feel safe to drive (2%), disabled (2%), car did not work (1%), limited public transportation available or accessible (1%), no car insurance (1%), no driver's license (1%), no public transportation available or accessible (<1%), no transportation before or after 8 a.m.- 4:30 p.m. (<1%), and other car issues/expenses (1%).
- See the Health Perceptions (pg. 17-18), Health Care Coverage (pgs. 19-21), and Health Care Access (pgs. 22-24) Sections for further health and health care information for Shiawassee County adults.

Social Determinants of Health

- Social determinants of health are conditions in the environments in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.
- Conditions (e.g., social, economic, and physical) in these various environments and settings (e.g., school, church, workplace, and neighborhood) have been referred to as "place." In addition to the more material attributes of "place," the patterns of social engagement and sense of security and well-being are also affected by where people live.
- Resources that enhance quality of life can have a significant influence on population health outcomes. Examples of these resources include safe and affordable housing, access to education, public safety, availability of healthy foods, local emergency/health services, and environments free of life-threatening toxins.
- Understanding the relationship between how population groups experience "place" and the impact of "place" on health is fundamental to the social determinants of health—including both social and physical determinants.

(Source: HealthyPeople2020, Retrieved May 19 2016, <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health>)

Social and Community Context

- 9% of Shiawassee County adults were abused in the past year. They were abused by the following: a spouse or partner (35%), someone outside their home (30%), a child (15%), a parent (15%), another family member (13%), and someone else (18%).
- They were abused in the following ways: emotionally (68%), verbally (50%), through electronic methods (48%), financially (25%), physically (10%), and sexually (3%).

9% of Shiawassee County adults were abused in the past year.

- Shiawassee County adults experienced the following adverse childhood experiences (ACEs): lived with someone who was a problem drinker or alcoholic (20%), their parents became separated or were divorced (19%), a parent or adult in their home swore at, insulted, or put them down (19%), lived with someone who was depressed, mentally ill, or suicidal (12%), lived with someone who used illegal street drugs, or who abused prescription medications (8%), their parents or adults in their home slapped, hit, kicked, punched, or beat each other up (8%), a parent or adult in their home hit, beat, kicked, or physically hurt them (7%), their parent or guardian died (6%), lived with someone who served time or was sentenced to serve time in prison, jail or other correctional facility (5%), someone at least 5 years older than them or an adult touched them sexually (5%), someone at least 5 years older than them or an adult tried to make them touch them sexually (4%), someone at least 5 years older than them or an adult forced them to have sex (2%), and their parents were not married (2%).
- 11% of Shiawassee County adults had 4 or more Adverse Childhood Experiences (ACE) happen to them as a child (under the age of 18). 7% had three experiences, 8% had two experiences, and 20% had one experience. 46% of adults had at least one experience.
- 16% of current smokers experienced four or more adverse childhood experiences, compared to 9% of non-smokers.
- 26% of adults who had used recreational drugs in the past 6 months experienced four or more adverse childhood experiences, compared to 10% of adults who did not use recreational drugs in the past 6 months.
- 16% of adults who reported having misused medication experienced four or more adverse childhood experiences, compared to 10% of adults who did not misuse medication.

Adverse Childhood Experiences (ACE)

Childhood abuse, neglect, and exposure to other traumatic stressors which we term adverse childhood experiences (ACE) are common. The most common are separated or divorced parents, verbal, physical or sexual abuse, witness of domestic violence, and having a family member with depression or mental illness.

According to the CDC, 59% of people surveyed in 5 states in 2009 reported having had at least one ACE while 9% reported five or more ACEs.

The short and long-term outcomes of these childhood exposures include a multitude of health and social problems such as:

- | | |
|----------------------------|--------------------------------------|
| ○ Depression | ○ Alcoholism and alcohol abuse |
| ○ Fetal death | ○ COPD |
| ○ Illicit drug use | ○ Unintended pregnancies |
| ○ Liver disease | ○ Suicide attempts |
| ○ STD's | ○ Early initiation of smoking |
| ○ Multiple sexual partners | ○ Risk for intimate partner violence |

Given the high prevalence of ACEs, additional efforts are needed at the state and local level to reduce and prevent childhood maltreatment and associated family dysfunction in the US.

(Source: CDC, Adverse Childhood Experiences (ACE) Study, May13, 2014, <http://www.cdc.gov/ace/about.htm> & Adverse Childhood Experiences Reported by Adults, Last Reviewed: June 3, 2011, <http://www.cdc.gov/features/dsaces/index.html>)

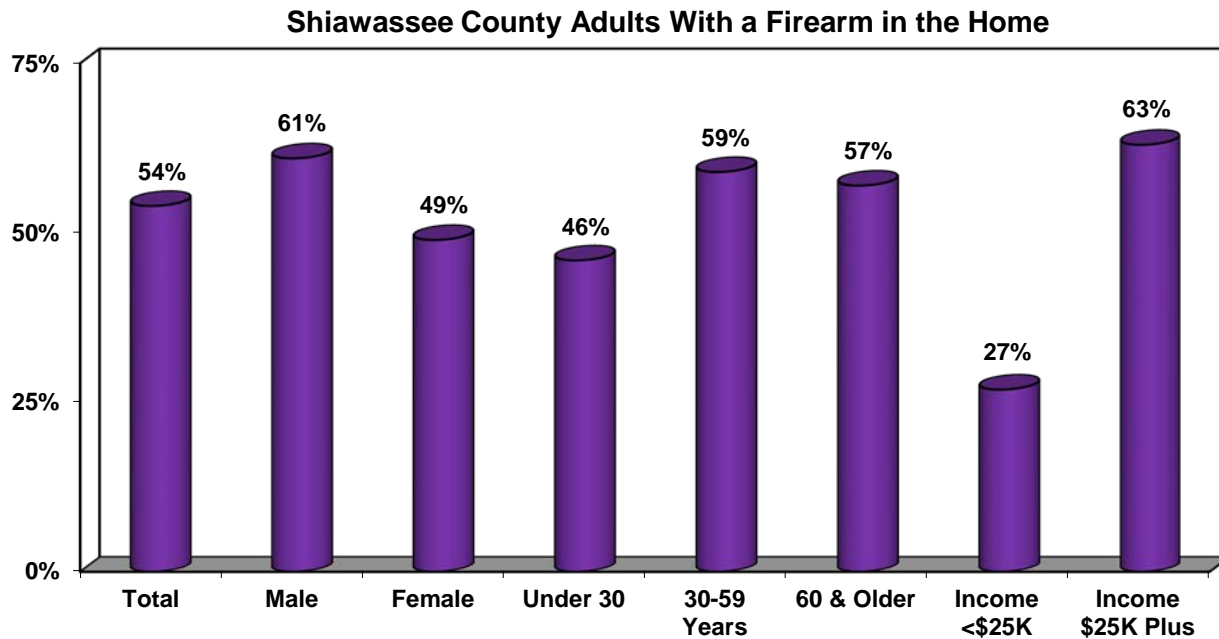
- Shiawassee County adults experienced the following in the past 12 months: a close family member went to the hospital (34%), death of a family member or close friend (31%), had bills they could not pay (18%), moved to a new address (8%), someone in their household had their hours at work reduced (8%), someone close to them had a problem with drinking or drugs (6%), someone in their household lost their job (6%), had someone living on their couch (5%), household income was cut by 50% (5%), were abused by someone physically, emotionally, sexually or verbally (4%), were threatened by someone close to them (3%), became separated or divorced (1%), knew someone who lived in a hotel (1%), someone in their household went to jail (1%), they or a family member were incarcerated (1%), their child was threatened by someone close to them (1%), were financially exploited (1%), were homeless (1%), were hit or slapped by their spouse or partner (1%), lost a large sum of money due to gambling activities (<1%), and were involved in a physical fight (<1%).

Neighborhood and Built Environment

- More than half (54%) of Shiawassee County adults kept a firearm in or around their home. 4% of adults reported they were unlocked and loaded.
- Shiawassee County adults reported doing the following while driving: wearing a seatbelt (89%), eating (51%), talking on hand-held cell phone (44%), talking on hands-free cell phone (30%), texting (12%), not wearing a seatbelt (7%), being under the influence of prescription drugs (5%), using internet on their cell phone (5%), checking email on their phone (4%), checking social media on their cell phone (4%), being under the influence of alcohol (3%), reading (2%), being under the influence of recreational drugs (1%), and other activities (such as applying makeup, shaving, etc.) (1%).
- Shiawassee County adults thought the following threatened their health in the past year:

○ Insects (10%)	○ Unsafe water supply/wells (2%)
○ Mold (7%)	○ Bed bugs (1%)
○ Indoor air quality (5%)	○ Cockroaches (1%)
○ Moisture issues (5%)	○ Radon (1%)
○ Rodents (5%)	○ Safety hazards (1%)
○ Plumbing problems (3%)	○ Sewage/waste water problems (1%)
○ Temperature regulation (3%)	○ Asbestos (<1%)
○ Agricultural chemicals (2%)	○ Lead paint (<1%)
○ Chemicals found in products (2%)	○ Lice (<1%)
○ Outdoor air quality (2%)	

The following graph shows the percentage of Shiawassee County adults that had a firearm in the home. Examples of how to interpret the information shown on the first graph include: 54% of all Shiawassee County adults kept a firearm in their home, 61% of males, and 59% of those ages 30-59 kept a firearm in their home.



Victims of Gun Violence in America

- More than 100,000 people are shot in murders, assaults, suicides & suicide attempts, accidents or by police intervention in America in an average year.
 - 31,537 people die from gun violence and 71,386 people survive gun injuries.
- Every day, an average of 282 people is shot in America. Of those 282 people, 86 people die and 196 are shot, but survive.
 - Of the 282 people who are shot every day, an average of 50 are children and teens.
 - Of the 86 people who die, 32 are murdered, 51 are suicides, 2 die accidentally and 1 with an unknown intent.
 - Of the 196 people who are shot but survive, 140 are from assault, 43 are shot accidentally, 10 are suicide attempts, 2 are police interventions and 1 with an unknown intent.

(Source: Brady Campaign to Prevent Gun Violence, "There Are Too Many Victims of Gun Violence" fact sheet, retrieved from:

<http://www.bradiycampaign.org/sites/default/files/GunDeathandInjuryStatSheet3YearAverageFINAL.pdf>)

Adult | MENTAL HEALTH AND SUICIDE

Key Findings

In 2016, 3% of Shiawassee County adults considered attempting suicide. 10% of adults had a period of two or more weeks when they felt so sad or hopeless nearly every day that they stopped doing usual activities.

Adult Mental Health

- 3% of Shiawassee County adults considered attempting suicide in the past year.
- No adults reported attempting suicide in the past year.
- In the past year, 10% of Shiawassee County adults had a period of two or more weeks when they felt so sad or hopeless nearly every day that they stopped doing usual activities, increasing to 19% of those under the age of 30.
- Shiawassee County adults felt sad, blue, or depressed and also had a period of two or more weeks when they had trouble sleeping/slept too much (25%), felt fatigued, no energy (22%), had trouble thinking or concentrating (16%), woke up before they wanted (14%), felt worthless or hopeless (13%), lost interest in most things (13%), had a weight/appetite change (11%), felt extremely restless or slowed down (10%), thought about death or suicide (4%), and attempted suicide (1%).
- Four-fifths (81%) of adults reported they were satisfied or very satisfied with their life, increasing to 89% of those under the age of 30. Conversely, 16% indicated they were dissatisfied or very dissatisfied with their life.
- Shiawassee County adults received the social and emotional support they needed from the following: family (77%), friends (69%), church (25%), neighbors (13%), community (6%), Internet (6%), a professional (4%), self-help group (1%), and other (6%).
- Shiawassee County adults reported they or a family member were diagnosed with or treated for the following mental health issues: depression (47%), anxiety or emotional problems (39%), an anxiety disorder (35%), attention deficit disorder (ADD/ADHD) (29%), alcohol and illicit drug abuse (23%), bipolar (16%), post-traumatic stress disorder (PTSD) (12%), other trauma (11%), a psychotic disorder (6%), autism spectrum (3%), developmental disability (3%), life-adjustment disorder (2%), and some other mental health disorder (8%). 32% indicated they or a family member had taken medication for one or more mental health issues.
- 11% of Shiawassee County adults used a program or service for themselves or a loved one to help with depression, anxiety, or emotional problems. Reasons for not using such a program included: could not afford to go (5%), had not thought of it (5%), other priorities (5%), co-pay/deductible too high (4%), did not know how to find a program (4%), fear (3%), stigma of seeking mental health services (3%), did not feel the services they received were good (2%), transportation (1%), and other reasons (2%). 63% of adults indicated they did not need such a program.

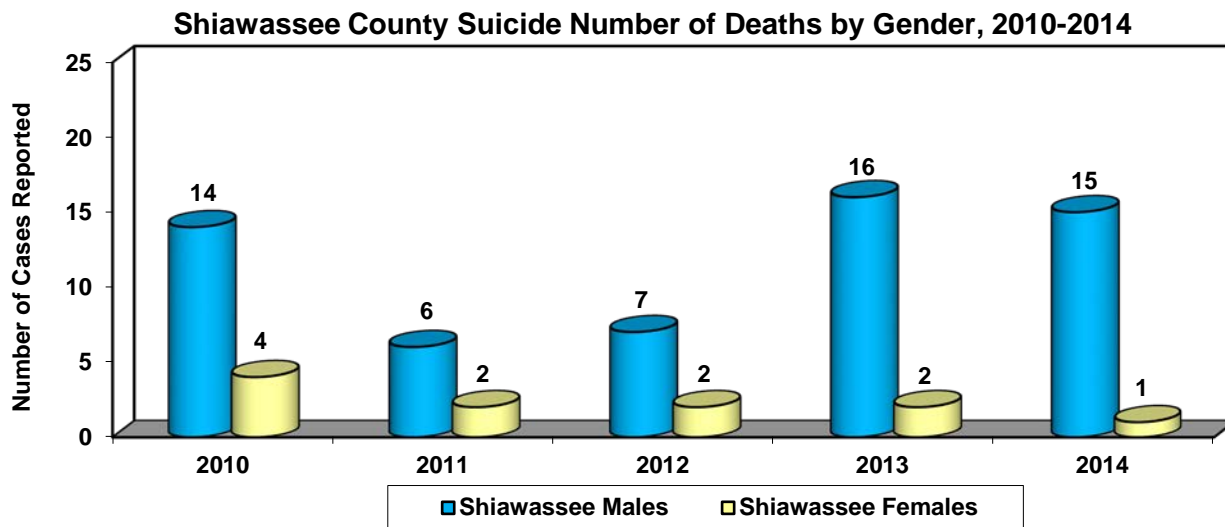
Suicide Facts

- 42,773 people in the U.S. died from suicide, and 1,069,325 people attempted suicide in the 2014.
- An average of one person killed themselves every 12.3 minutes
- Suicide is the 10th ranking cause of death in the U.S.
- For every female death by suicide, there are 3.4 male deaths.
- In 2014, there were 1,354 suicide deaths in Michigan.
- The leading suicide methods included:
 - Firearm suicides (49.9%)
 - Suffocation/Hanging (26.7%)
 - Poisoning (15.9%)
 - Cutting/Piercing (1.7%)
 - Drowning (0.9%)

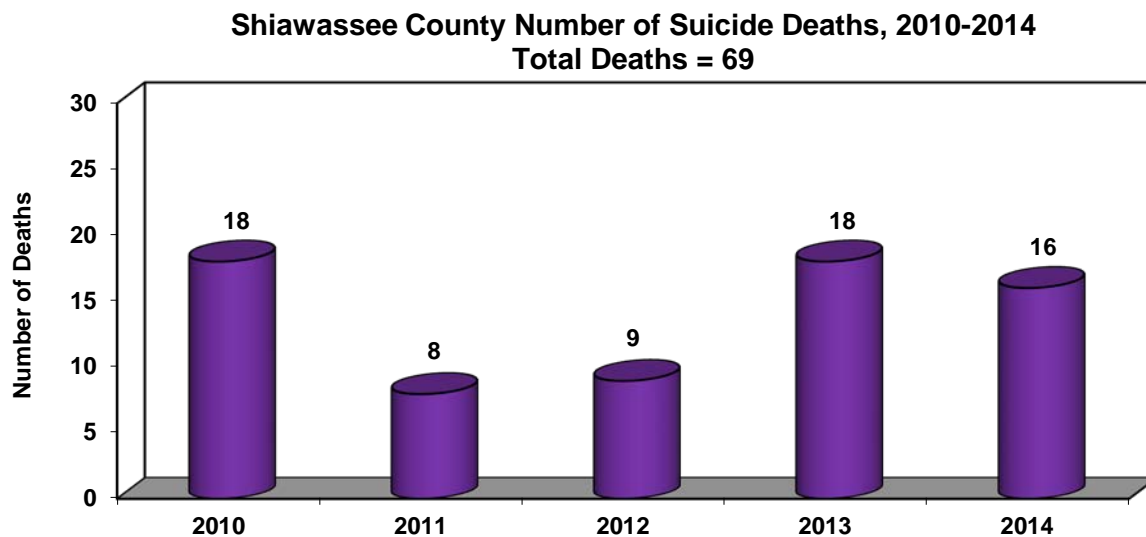
(Sources: American Association of Suicidology, Facts & Statistics, from: <http://www.suicidology.org/resources/facts-statistics>)

The following graphs show the Shiawassee County suicide counts. The graphs show:

- From 2010-2014, 84% of suicide deaths were males.
- From 2010-2014, there were 69 suicide deaths in Shiawassee County.



(Source: MDHHS, Vital Statistics)



(Source: MDHHS, Vital Statistics)

Warning Signs for Suicide

More than 90 percent of people who kill themselves are suffering from one or more psychiatric disorders, in particular:

- Major depression
- Bipolar depression
- Schizophrenia
- Drug abuse and dependence
- Alcohol abuse and dependence
- Post-Traumatic Stress Disorder (PTSD)
- Eating disorders
- Personality disorders

The core symptoms of major depression are a “down” or depressed mood most of the day or a loss of interest or pleasure in activities that were previously enjoyed for at least two weeks, as well as:

- Changes in sleeping patterns
- Change in appetite or weight
- Intense anxiety, agitation, restlessness
- Fatigue or loss of energy
- Decreased concentration, indecisiveness, or poorer memory
- Feelings of hopelessness, worthlessness, self-reproach or excessive or inappropriate guilt
- Recurrent thoughts of suicide

Prevention: Take it Seriously

Fifty to 75% of all suicides give some warning of their intentions to a friend or family member. Recognize the *Imminent Dangers*:

- Threatening to hurt or kill oneself
- Talking or writing about death, dying, or suicide
- Looking for ways to kill oneself (weapons, pills, or other means)
- Has made plans or preparations for a potentially serious attempt

(Source: American Foundation for Suicide Prevention, *When You Fear Someone May Take Their Life*, <https://www.afsp.org/>)

Adult | ORAL HEALTH

Key Findings

The 2016, more than two-thirds (68%) of Shiawassee County adults had visited a dentist or dental clinic in the past year. The 2014 BRFSS reported that 65% of U.S. adults and 69% of Michigan adults had visited a dentist or dental clinic in the previous twelve months.

Access to Dental Care

- In the past year, 68% of Shiawassee County adults had visited a dentist or dental clinic, decreasing to 57% of adults with annual household incomes less than \$25,000.
- The 2014 BRFSS reported that 65% of U.S. adults and 69% of Michigan adults had visited a dentist or dental clinic in the previous twelve months.
- More than three-fourths (76%) of Shiawassee County adults with dental insurance have been to the dentist in the past year, compared to 51% of those without dental insurance.
- When asked the main reason for not visiting a dentist in the last year, 29% said cost, 20% indicated multiple reasons, 13% said fear, apprehension, nervousness, pain, and dislike going, 11% had no oral health problems, 6% had not thought of it, 4% had other priorities, 1% could not find a dentist who took Medicaid, 1% did not have/know a dentist, and 1% could not find a dentist taking new Medicaid patients.
- Two-fifths (40%) of adults had one or more of their permanent teeth removed, increasing to 61% of those ages 60 and over. The 2014 BRFSS reported that 43% of U.S. and Michigan adults had one or more permanent teeth removed.
- The 2016 Health Assessment reports that 13% of Shiawassee County adults ages 60 and over had all of their permanent teeth removed. The 2014 BRFSS reported that 15% of U.S. adults and 13% of Michigan adults ages 65 and over had all of their permanent teeth removed.

Shiawassee County Dental Care Resources – 2013

- General dentists- 30
- Specialty Dentists- 2
- Healthy Kids Dentists- 30
- Number of dentists who treated Medicaid patients- 0
- Medicaid Dental Coverage- Healthy Kids Dental Fee-for-Service, Adult

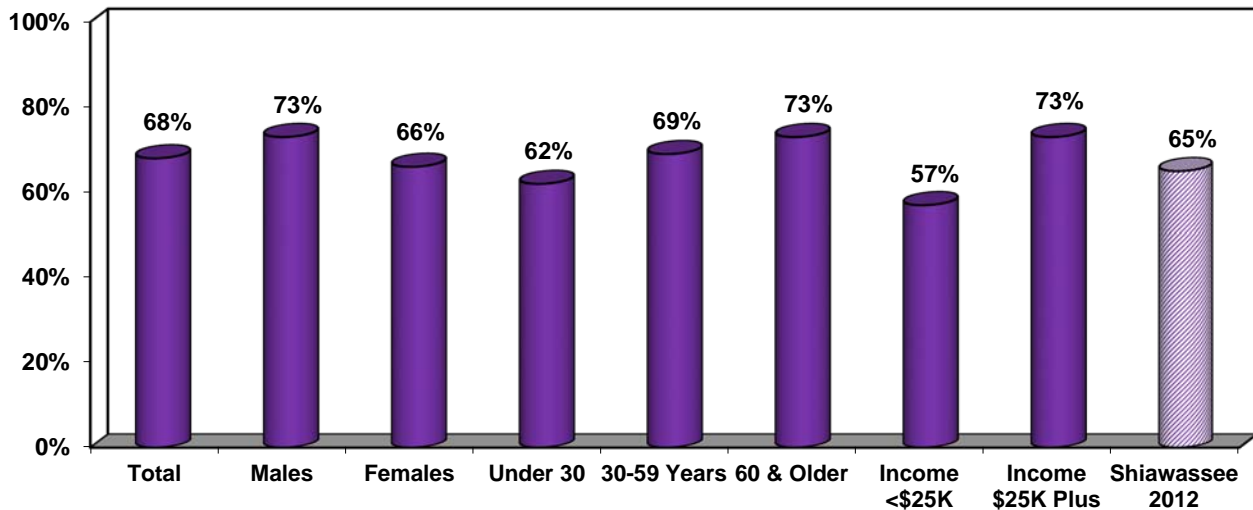
(Source: Michigan Oral Health Coalition, 2013)

ORAL HEALTH

Adult Comparisons	Shiawassee County 2012	Shiawassee County 2016	Michigan 2014	U.S. 2014
Adults who have visited the dentist in the past year	65%	68%	69%	65%
Adults who have had one or more permanent teeth removed	39%	40%	43%	43%
Adults 65 years and older who had all of their permanent teeth removed	20%	13%	13%	15%

The following graph provides information about the frequency of Shiawassee County adult and youth dental visits. Examples of how to interpret the information on the graph include: 68% of all Shiawassee County adults had been to the dentist in the past year, 62% of those under the age of 30, and 57% of those with incomes less than \$25,000.

Shiawassee County Adults Visiting a Dentist in the Past Year



Great Lakes Bay Health Centers: Dental Care

- Great Lakes Bay Health Centers (formerly Health Delivery, Inc.) began as a very small migrant health clinic in 1969, when the Saginaw County Health Department received a \$75,000 grant to provide health care to farm workers. Today Great Lakes Bay Health Centers makes up the second largest of the 42 Michigan Health Center organizations.
- These Michigan Health Centers operate over 250 sites across the state, and help more than 615,000 patients each year access quality, comprehensive, affordable health care, regardless of insurance status or income level.
- Great Lakes Bay Health Centers provides comprehensive family dental care including cleanings, x-rays, restorations, oral surgery, dentures, root canals, crowns, emergency dental care, and more.
- Great Lakes Bay Health Centers recently opened a dental clinic in Shiawassee County, which could improve access to dental care.

(Source: Great Lakes Bay Health Centers, retrieved from <http://www.greatlakesbayhealthcenters.org/about/>)

Appendix I | SHIAWASSEE COUNTY HEALTH ASSESSMENT INFORMATION SOURCES

Source	Data Used	Website
American Academy of Allergy	<ul style="list-style-type: none"> Asthma and Immunology 	www.aaaai.org/about-the-aaaai/newsroom/asthma-statistics.aspx
American Cancer Society, Cancer Facts and Figures 2015. Atlanta: ACS, 2015	<ul style="list-style-type: none"> 2016 Cancer Facts, Figures, and Estimates Nutrition Recommendations 	www.cancer.org
American Diabetes Association	<ul style="list-style-type: none"> Type 1 and 2 Diabetes Risk Factors for Diabetes Diabetes Statistics in America 	www.diabetes.org
American Foundation for Suicide Prevention	<ul style="list-style-type: none"> Warning Signs for Suicide 	www.afsp.org/
American Heart Association	<ul style="list-style-type: none"> Stroke Warning Signs and Symptoms Smoke-free Living: Benefits & Milestones Heart Attack Warning Signs and Symptoms 	www.heart.org/HEARTORG/
<i>Arthritis at a Glance, 2012</i> , Centers for Disease Control and Prevention, <i>Morbidity and Mortality Weekly Report 2010</i> ; 59(39):999-1003 & 59(39):1261-1265	<ul style="list-style-type: none"> Arthritis Statistics 	www.cdc.gov/chronicdisease/resources/publications/AAG/arthritis.htm
Behavioral Risk Factor Surveillance System, National Center for Chronic Disease Prevention and Health Promotion, Behavioral Surveillance Branch, Centers for Disease Control and Prevention	<ul style="list-style-type: none"> 2009 - 2014 Adult Michigan and U.S. Correlating Statistics 	www.cdc.gov
Brady Campaign to Prevent Gun Violence	<ul style="list-style-type: none"> Victims of Gun Violence 	www.bradycampaign.org/sites/default/files/GunDeathandInjuryStatSheet3YearAverageFINAL.pdf

APPENDIX I

Source	Data Used	Website
Centers for Disease Control and Prevention (CDC)	<ul style="list-style-type: none"> Adult Vaccinations Asthma Attacks Binge Drinking Among Women Breast Cancer in Young Women Cancer and Men Distracted Driving Impact of Arthritis Health Care Access Among the Employed and Unemployed Health Care Access and Utilization Health Insurance Coverage HIV in the U.S. Heart Health and Stroke Facts Impaired Driving Men's Health Data Obesity Facts Physical Activity among Adults with Disabilities Tips for Parents Yearly Flu Shots 	www.cdc.gov
CDC, Adverse Childhood Experiences (ACE)	<ul style="list-style-type: none"> Adverse Childhood Experiences (ACE) 	www.cdc.gov/ace/about.htm
CDC, Adverse Childhood Experiences (ACE)	<ul style="list-style-type: none"> Adverse Childhood Experiences (ACE) Reported by Adults 	www.cdc.gov/features/dsaces/index.html
CDC, Arthritis	<ul style="list-style-type: none"> Key Public Health Messages 	www.cdc.gov/arthritis/basics/key.htm
CDC, Injury Center	<ul style="list-style-type: none"> Violence Prevention Understanding Bullying Fact Sheet 	www.cdc.gov/violenceprevention/pub/understanding_bullying.html
CDC, National Center for Health Statistics	<ul style="list-style-type: none"> Leading Causes of Death in U.S. Men's Health U.S. Female Fertility Rate 	www.cdc.gov/nchs/fstats/
CDC, Physical Activity for Everyone	<ul style="list-style-type: none"> Physical Activity Recommendations 	www.cdc.gov/physicalactivity/everyone/guidelines/adults.html

Source	Data Used	Website
CDC, Press Release	<ul style="list-style-type: none"> Electronic Cigarettes and Teenagers in the U.S. 	www.cancer.org/cancer/news/electronic-cigarette-use-doubles-among-teenagers
CDC, Sexually Transmitted Diseases Surveillance, 2014	<ul style="list-style-type: none"> U.S. Chlamydia and Gonorrhea Rates STD's in Adolescents and Young Adults U.S. STD Surveillance Profile 	www.cdc.gov/std/stat/s/
CDC, Vaccine Safety, Human Papillomavirus (HPV)	<ul style="list-style-type: none"> Human Papillomavirus 	www.cdc.gov/vaccinesafety/vaccines/HPV/Index.html
Community Commons	<ul style="list-style-type: none"> Cigarette Expenditures Alcohol Beverage Expenditures Beer, Wine and Liquor Stores Bars and Drinking Establishments 	www.communitycommons.org/
Community Health Rankings and Roadmaps	<ul style="list-style-type: none"> Healthcare Statistics 	www.countyhealthrankings.org/
Great Lakes Bay Health Centers	<ul style="list-style-type: none"> Dental Care 	www.greatlakesbayhealthcenters.org/about/
Healthy People 2020: U.S. Department of Health & Human Services	<ul style="list-style-type: none"> All Healthy People 2020 Target Data Points Some U.S. Baseline Statistics Predictors of Access to Health Care 	www.healthypeople.gov/2020/topicsobjectives2020
Legacy for Health	<ul style="list-style-type: none"> Tobacco Fact Sheet 	www.legacyforhealth.org/content/download/582/6926/file/LEG-FactSheet-eCigarettes-JUNE2013.pdf
National Institute on Drug Abuse	<ul style="list-style-type: none"> Abuse of Prescription Drugs 	www.drugabuse.gov
Michigan Community Health Information	<ul style="list-style-type: none"> Incidence of Cancer 	www.michigan.gov/mdch/0,4612,7-132-2944_5326---,00.html
Michigan Department of Health and Human Services	<ul style="list-style-type: none"> Medicaid Health Plan Enrollees 	www.michigan.gov/documents/mdch/JE02072014_462792_7.pdf
Michigan Oral Health Coalition	<ul style="list-style-type: none"> Shiawassee County Dental Care Resources 	www.mohc.org/
Michigan Cancer Surveillance Program	<ul style="list-style-type: none"> Age-Adjusted Cancer Mortality Rates 	www.michigan.gov/mdch/0,4612,7-132-2945_5221-16586--,00.html

Source	Data Used	Website
Michigan Department of Health and Human Services, Vital Statistics	<ul style="list-style-type: none"> Age-Adjusted Mortality Rates for Diabetes Age-Adjusted Mortality Rates for Motor Vehicle Accidents Heart Disease and Stroke Mortality Rates Incidence of Cancer Shiawassee County and Michigan Mortality Statistics Shiawassee County and Michigan Birth Statistics Shiawassee County and Michigan Leading Causes of Death Motor Vehicle Deaths Nativity and Pregnancy Sexually Transmitted Diseases 	www.michigan.gov/dhhs
Michigan Traffic Crash Facts	<ul style="list-style-type: none"> 2015 Traffic Crash Facts Fatal Crashes and Fatalities with Drinking Involvement 	www.michigantrafficcrashfacts.org
National Institute on Drug Abuse	<ul style="list-style-type: none"> The Science of Drug Abuse and Addiction Drug Facts: Drugged Driving 	www.drugabuse.gov/publications/drugfacts/drugged-driving , revised 12-14
Philadelphia Department of Public Health	<ul style="list-style-type: none"> Electronic Cigarette Fact Sheet 	www.smokefreephilly.org/smokfree_philly/assets/File/Electronic%20Cigarette%20Fact%20Sheet_2_27_14.pdf
U. S. Department of Commerce, Census Bureau; Bureau of Economic Analysis	<ul style="list-style-type: none"> American Community Survey 5 year estimates, 2014 Michigan and Shiawassee County 2014 Census Demographic Information Michigan and U.S. Health Insurance Sources Small Area Income and Poverty Estimates Federal Poverty Thresholds 	www.census.gov

Appendix II | SHIAWASSEE COUNTY

ACRONYMS AND TERMS

AHS	Access to Health Services (topic area for Healthy People 2020)
Adult	Defined as 19 years of age and older.
Age-Adjusted Mortality Rates	Death rate per 100,000 adjusted for the age distribution of the population.
Adult Binge Drinking	Consumption of five alcoholic beverages or more (for males) or four or more alcoholic beverages (for females) on one occasion.
AOCBC	Arthritis, Osteoporosis, and Chronic Back Conditions
BMI	Body Mass Index is defined as the contrasting measurement/relationship of weight to height.
BRFSS	Behavior Risk Factor Surveillance System , an adult survey conducted by the CDC.
CBP	U.S. Census Bureau's County Business Patterns data series.
CDC	Centers for Disease Control and Prevention.
CVD	Cardiovascular Disease
Current Smoker	Individual who has smoked at least 100 cigarettes in their lifetime and now smokes daily or on some days.
CY	Calendar Year
FY	Fiscal Year
HCNO	Hospital Council of Northwest Ohio
HDS	Heart Disease and Stroke (topic area for Healthy People 2020)
HP 2020	Healthy People 2020 , a comprehensive set of health objectives published by the Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services.
Health Indicator	A measure of the health of people in a community, such as cancer mortality rates, rates of obesity, or incidence of cigarette smoking.
High Blood Cholesterol	240 mg/dL and above
High Blood Pressure	Systolic ≥ 140 and Diastolic ≥ 90
IID	Immunization and Infectious Diseases (topic area for Healthy People 2020)
IVP	Injury and Violence Prevention , Topic of Healthy People 2020 objectives
MDHHS	Michigan Department of Health and Human Services

MHMD	Mental Health and Mental Disorders , Topic of Healthy People 2020 objectives
N/A	Data is not available.
NWS	Nutrition and Weight Status , Topic of Healthy People 2020 objectives
Race/Ethnicity	Census 2010: U.S. Census data consider race and Hispanic origin separately. Census 2010 adhered to the standards of the Office of Management and Budget (OMB), which define Hispanic or Latino as “a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race.” Data are presented as “Hispanic or Latino” and “Not Hispanic or Latino.” Census 2010 reported five race categories including: White, Black or African American, American Indian & Alaska Native, Asian, Native Hawaiian and Other Pacific Islander. Data reported, “White alone” or “Black alone”, means the respondents reported only one race.
SA	Substance Abuse , Topic of Healthy People 2020 objectives
SAMHSA	Substance and Mental Health Services Administration
TU	Tobacco Use , Topic of Healthy People 2020 objectives
YPLL/65	Years of Potential Life Lost before age 65. Indicator of premature death.
ZCTA	Zip Code Tabulation Area , Geographic Area represented through Census Business Patterns in Community Commons map

Appendix III | METHODS FOR WEIGHTING THE 2016 SHIAWASSEE COUNTY ASSESSMENT DATA

Data from sample surveys have the potential for bias if there are different rates of response for different segments of the population. In other words, some subgroups of the population may be more represented in the completed surveys than they are in the population from which those surveys are sampled. If a sample has 25% of its respondents being male and 75% being female, then the sample is biased towards the views of females (if females respond differently than males). This same phenomenon holds true for any possible characteristic that may alter how an individual responds to the survey items.

In some cases, the procedures of the survey methods may purposefully over-sample a segment of the population in order to gain an appropriate number of responses from that subgroup for appropriate data analysis when investigating them separately (this is often done for minority groups). Whether the over-sampling is done inadvertently or purposefully, the data needs to be weighted so that the proportioned characteristics of the sample accurately reflect the proportioned characteristics of the population. In the 2015 Shiawassee County survey, a weighting was applied prior to the analysis that weighted the survey respondents to reflect the actual distribution of Shiawassee County based on age, sex, race, and income.

Weightings were created for each category within sex (male, female), race (White, Non-White), Age (9 different age categories), and income (7 different income categories). The numerical value of the weight for each category was calculated by taking the percent of Shiawassee County within the specific category and dividing that by the percent of the sample within that same specific category. Using sex as an example, the following represents the data from the 2016 Shiawassee County Survey and the 2013 Census Estimates from the Census.

<u>2016 Shiawassee Survey</u>			<u>2013 Census Estimate</u>		<u>Weight</u>
<u>Sex</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	
Male	200	48.30918	34,354	49.39255	1.02243
Female	214	51.69082	35,199	50.60745	0.97904

In this example, it shows that there was a slightly larger portion of females in the sample compared to the actual portion in Shiawassee County. The weighting for males was calculated by taking the percent of males in Shiawassee County (based on Census information) (49.39255%) and dividing that by the percent found in the 2016 Shiawassee County sample (48.30918%) [$49.39255/48.30918$ = weighting of 1.02243 for males]. The same was done for females [$50.60745/51.69082$ = weighting of 0.97904 for females]. Thus males' responses are weighted heavier by a factor of 1.02243 and females' responses weighted less by a factor of 0.97904.

This same thing was done for each of the 20 specific categories as described above. For example, a respondent who was female, White, in the age category 35-44, and with a household income in the \$50-\$75k category would have an individual weighting of 1.63562 [0.97904 (weight for females) x 1.02649 (weight for White) x 1.61946 (weight for age 35-44) x 1.00498 (weight for income \$50-\$75k)]. Thus, each individual in the 2015 Shiawassee County sample has their own individual weighting based on their combination of age, race, sex, and income. See next page for each specific weighting and the numbers from which they were calculated.

Multiple sets of weightings were created and used in the statistical software package (SPSS 23.0) when calculating frequencies. For analyses done for the entire sample and analyses done based on subgroups other than age, race, sex, or income – the weightings that were calculated based on the product of the four weighting variables (age, race, sex, income) for each individual. When analyses were done comparing groups within one of the four weighting variables (e.g., smoking status by race/ethnicity), that specific variable was not used in the weighting score that was applied in the software package. In the example smoking status by race, the weighting score that was applied during analysis included only age, sex, and income. Thus a total of eight weighting scores for each individual were created and applied depending on the analysis conducted. The weight categories were as follows:

- 1) **Total weight** (product of 4 weights) – for all analyses that did not separate age, race, sex, or income.
- 2) **Weight without sex** (product of age, race, and income weights) – used when analyzing by sex.
- 3) **Weight without age** (product of sex, race, and income weights) – used when analyzing by age.
- 4) **Weight without race** (product of age, sex, and income weights) – used when analyzing by race.
- 5) **Weight without income** (product of age, race, and sex weights) – used when analyzing by income.
- 6) **Weight without sex or age** (product of race and income weights) – used when analyzing by sex and age.
- 7) **Weight without sex or race** (product of age and income weights) – used when analyzing by sex and race.
- 8) **Weight without sex or income** (product of age and race weights) – used when analyzing by sex and income.

APPENDIX III

Category	Shiawassee Sample	%	2010 Census *	%	Weighting Value
Sex:					
Male	200	48.30918	34,354	49.39255	1.02243
Female	214	51.69082	35,199	50.60745	0.97904
Age:					
20-24	18	4.42260	4,173	8.08564	1.82825
25-34	21	5.15971	7,512	14.55532	2.82096
35-44	42	10.31941	8,625	16.71188	1.61946
45-54	83	20.39312	10,920	21.15869	1.03754
55-59	46	11.30221	5,008	9.70355	0.85855
60-64	56	13.75921	4,660	9.02926	0.65623
65-74	102	25.06143	6,051	11.72447	0.46783
75-84	39	9.58231	3,339	6.46968	0.67517
85+	0	0	1,322	2.56152	NA
Race:					
White	397	94.52381	67,486	97.02817	1.02649
Non-White	23	5.47619	2,067	2.97183	0.54268
Household Income:					
Less than \$10,000	28	7.27273	1,948	7.10741	0.97727
\$10k-\$15k	21	5.45455	1,454	5.30502	0.97259
\$15k-\$25k	49	12.72727	3,457	12.61311	0.99103
\$25k-\$35k	44	11.42857	3,128	11.41273	0.99861
\$35k-\$50	63	16.36364	4,499	16.41492	1.00313
\$50k-\$75k	79	20.51948	5,652	20.62172	1.00498
\$75k or more	101	26.23377	7,270	26.52510	1.01111

Note: The weighting ratios are calculated by taking the ratio of the proportion of the population of Shiawassee County in each subcategory by the proportion of the sample in the Shiawassee County survey for that same category.

* Shiawassee County population figures taken from the 2013 Census Estimate.

Appendix IV | SHIAWASSEE COUNTY SAMPLE DEMOGRAPHIC PROFILE*

Variable	2016 Survey Sample	Shiawassee County Census 2010-2014 (5 year estimates)	Michigan Census 2015 (1 year estimate)
Age			
20-29	6.5%	11.1%	13.5%
30-39	8.8%	11.7%	11.8%
40-49	15.0%	14.0%	12.6%
50-59	19.0%	15.3%	14.7%
60 plus	45.4%	22.1%	22.4%
Race/Ethnicity			
White	91.1%	97.0%	78.6%
Black or African American	0%	0.6%	13.9%
American Indian and Alaska Native	0.4%	0.4%	0.5%
Asian	0.2%	0.4%	3.0%
Other	4.6%	1.6%	1.2%
Hispanic Origin (may be of any race)	1.3%	2.6%	4.9%
Marital Status†			
Married Couple	58.4%	54.4%	47.6%
Never been married/member of an unmarried couple	12.4%	26.7%	33.6%
Divorced/Separated	16.4%	12.7%	12.8%
Widowed	10.7%	6.3%	6.0%
Education†			
Less than High School Diploma	3.2%	8.9%	9.9%
High School Diploma	32.2%	37.8%	29.4%
Some college/ College graduate	62.1%	53.3%	60.7%
Income (Families)			
\$14,999 and less	11.4%	9.0%	7.9%
\$15,000 to \$24,999	11.4%	8.6%	7.5%
\$25,000 to \$49,999	24.7%	26.5%	22.6%
\$50,000 to \$74,999	18.1%	23.0%	20.2%
\$75,000 or more	23.1%	32.9%	41.9%

* The percent's reported are the actual percent within each category who responded to the survey. The data contained within the report however are based on weighted data (weighted by age, race, sex, and income). Percent's may not add to 100% due to missing data (non-responses) and those reporting "don't know".

† The Michigan and Shiawassee County Census percentages are slightly different than the percent who responded to the survey. Marital status is calculated for those individuals 15 years and older. Education is calculated for those 25 years and older.

Appendix V | DEMOGRAPHICS AND HOUSEHOLD INFORMATION

Shiawassee County Population by Age Groups and Gender
U.S. Census 2010

Age	Total	Males	Females
Shiawassee County	70,648	34,921	35,727
0-4 years	3,987	2,054	1,933
1-4 years	3,218	1,671	1,547
< 1 year	769	383	386
1-2 years	1,561	803	758
3-4 years	1,657	868	789
5-9 years	4,612	2,349	2,263
5-6 years	1,747	902	845
7-9 years	2,865	1,447	1,418
10-14 years	5,181	2,712	2,469
10-12 years	3,044	1,570	1,474
13-14 years	2,137	1,142	995
12-18 years	7,615	4,030	3,585
15-19 years	5,476	2,892	2,584
15-17 years	3,279	1,751	1,531
18-19 years	2,197	1,144	1,053
20-24 years	3,823	1,929	1,894
25-29 years	3,661	1,843	1,818
30-34 years	3,995	1,981	2,014
35-39 years	4,235	2,124	2,111
40-44 years	4,987	2,446	2,541
45-49 years	5,728	2,854	2,874
50-54 years	5,613	2,789	2,824
55-59 years	5,007	2,428	2,579
60-64 years	4,238	2,095	2,143
65-69 years	3,224	1,530	1,694
70-74 years	2,364	1,140	1,224
75-79 years	1,811	791	1,020
80-84 years	1,344	546	798
85-89 years	872	292	580
90-94 years	379	108	271
95-99 years	99	15	84
100-104 years	8	0	8
105-109 years	4	3	1
110 years & over	0	0	0
Total 85 years and over	1,362	418	944
Total 65 years and over	10,105	4,425	5,680
Total 19 years and over	52,441	25,459	26,982

SHIAWASSEE COUNTY PROFILE

General Demographic Characteristics (Source: U.S. Census Bureau, Census 2010-2014)

2014 ACS 5-year estimates

Total Population

2014 Total Population	69,553
2000 Total Population	71,687

Largest City-Owosso

2014 Total Population	14,992	100%
2000 Total Population	15,713	100%

Population By Race/Ethnicity

Total Population	69,553	100%
White Alone	67,486	97.0%
Hispanic or Latino (of any race)	1,814	2.6%
African American	404	0.6%
American Indian and Alaska Native	281	0.4%
Asian	290	0.4%
Two or more races	942	1.4%
Other	106	0.2%

Population By Age 2010

Under 5 years	3,987	5.6%
5 to 17 years	13,072	18.5%
18 to 24 years	6,020	8.5%
25 to 44 years	16,878	23.9%
45 to 64 years	20,586	29.1%
65 years and more	10,105	14.3%

Median age (years) 40.3

Household By Type

Total Households	27,435	100%
Family Households (families)	19,272	70.2%
With own children <18 years	7,870	28.7%
Married-Couple Family Households	14,753	53.8%
With own children <18 years	5,432	19.8%
Female Householder, No Husband Present	3,094	11.3%
With own children <18 years	1,690	6.2%
Non-family Households	8,163	29.8%
Householder living alone	6,740	24.6%
Householder 65 years and >	2,463	9.0%

Households With Individuals < 18 years	8,657	31.6%
Households With Individuals 65 years and >	7,371	26.9%

General Demographic Characteristics, Continued
(Source: U.S. Census Bureau, Census 2010-2014)

2010-2014 ACS 5-year estimate

Median Value of Owner-Occupied Units	\$104,700
Median Monthly Owner Costs (With Mortgage)	\$1,159
Median Monthly Owner Costs (Not Mortgaged)	\$439
Median Gross Rent for Renter-Occupied Units	\$675
Median Rooms Per Housing Unit	6.0
 Total Housing Units	 30,184
No Telephone Service	767
Lacking Complete Kitchen Facilities	203
Lacking Complete Plumbing Facilities	108

Selected Social Characteristics
(Source: U.S. Census Bureau, Census 2014)

2014 ACS 1-year estimates

School Enrollment

Population 3 Years and Over Enrolled In School	17,313	100%
Nursery & Preschool	918	5.3%
Kindergarten	910	5.3%
Elementary School (Grades 1-8)	7,319	42.3%
High School (Grades 9-12)	4,191	24.2%
College or Graduate School	3,975	23.0%

Educational Attainment

Population 25 Years and Over	47,424	100%
< 9 th Grade Education	1,142	2.4%
9 th to 12 th Grade, No Diploma	3,089	6.5%
High School Graduate (Includes Equivalency)	17,931	37.8%
Some College, No Degree	13,029	27.5%
Associate Degree	5,088	10.7%
Bachelor's Degree	4,440	9.4%
Graduate Or Professional Degree	2,705	5.7%

Percent High School Graduate or Higher	*(X)	91.1%
Percent Bachelor's Degree or Higher	*(X)	15.1%

*(X) – Not available

Marital Status

Population 15 Years and Over	56,646	100%
Never Married	15,147	26.7%
Now Married, Excluding Separated	30,802	54.4%
Separated	766	1.4%
Widowed	3,557	6.3%
Female	2,769	4.9%
Divorced	6,373	11.3%
Female	3,458	6.1%

Selected Social Characteristics Continued
(Source: U.S. Census Bureau, Census 2010-2014)

2010-2014 ACS 5-year estimate

Grandparents As Caregivers

Grandparent Living in Household with 1 or more own grandchildren <18 years	1,094	100%
Grandparent Responsible for Grandchildren	347	31.7%

Veteran Status

Civilian Veterans 18 years and over	5,114	9.6%
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Disability Status of the Civilian Non-institutionalized Population

Total Civilian Noninstitutionalized Population	69,100	100%
With a Disability	10,577	15.3%
Under 18 years	16,048	100%
With a Disability	1,057	6.6%
18 to 64 years	42,567	100%
With a Disability	5,519	13.0%
65 Years and Over	10,485	100%
With a Disability	4,001	38.2%

Employment Status

Population 16 Years and Over	55,781	100%
In Labor Force	33,445	60.0%
Not In Labor Force	22,336	40.0%
Females 16 Years and Over	28,511	100%
In Labor Force	15,883	55.7%
Population Living With Own Children <6 Years	4,399	100%
All Parents In Family In Labor Force	3,063	69.6%

Selected Economic Characteristics
(Source: U.S. Census Bureau, Census 2010-2014)

2010-2014 ACS 5-year estimate

Occupations

Employed Civilian Population 16 Years and Over	29,583	100%
Production, Transportation, and Material Moving Occupations	5,682	19.2%
Management, business, science, and art occupations	8,222	27.8%
Sales and Office Occupations	7,021	23.7%
Service Occupations	5,356	18.1%
Natural Resources, Construction, and Maintenance Occupations	3,302	11.2%

Leading Industries

Employed Civilian Population 16 Years and Over	29,583	100%
Manufacturing	4,988	16.9%
Educational, health and social services	6,791	23.0%
Trade (retail and wholesale)	4,922	16.7%
Arts, entertainment, recreation, accommodation, and food services	1,887	6.4%
Professional, scientific, management, administrative, and waste management services	1,961	6.6%
Transportation and warehousing, and utilities	1,458	4.9%
Finance, insurance, real estate and rental and leasing	1,184	4.0%
Other services (except public administration)	1,924	6.5%
Construction	2,057	7.0%
Public administration	1,340	4.5%
Information	400	1.4%
Agriculture, forestry, fishing and hunting, and mining	671	2.3%

Class of Worker

Employed Civilian Population 16 Years and Over	29,583	100%
Private Wage and Salary Workers	23,807	80.5%
Government Workers	3,663	12.4%
Self-Employed Workers in Own Not Incorporated Business	2,063	7.0%
Unpaid Family Workers	50	0.2%

Median Earnings

Male, Full-time, Year-Round Workers	\$44,968
Female, Full-time, Year-Round Workers	\$34,889

Selected Economic Characteristics, Continued
(Source: U.S. Census Bureau, Census 2010-2014)

2010-2014 ACS 5-year estimate

Income In 2014

Households	27,435	100%
< \$10,000	1,958	7.1%
\$10,000 to \$14,999	1,466	5.3%
\$15,000 to \$24,999	3,460	12.6%
\$25,000 to \$34,999	3,122	11.4%
\$35,000 to \$49,999	4,512	16.4%
\$50,000 to \$74,999	5,656	20.6%
\$75,000 to \$99,999	3,406	12.4%
\$100,000 to \$149,999	2,892	10.5%
\$150,000 to \$199,999	646	2.4%
\$200,000 or more	317	1.2%

Median Household Income

\$47,723

Income In 2014

Families	19,272	100%
< \$10,000	1,147	6.0%
\$10,000 to \$14,999	572	3.0%
\$15,000 to \$24,999	1,654	8.6%
\$25,000 to \$34,999	1,783	9.3%
\$35,000 to \$49,999	3,320	17.2%
\$50,000 to \$74,999	4,446	23.1%
\$75,000 to \$99,999	2,811	14.6%
\$100,000 to \$149,999	2,652	13.8%
\$150,000 to \$199,999	593	3.1%
\$200,000 or more	294	1.5%

Median Household Income (families)

\$55,953

Per Capita Income In 2014

\$23,206

Poverty Status In 2014

	Number Below Poverty Level	% Below Poverty Level
Families	*(X)	12.0%
Individuals	*(X)	15.5%
*(X) – Not available		

Selected Economic Characteristics, Continued
(Source: U.S. Bureau of Economic Analysis)

Bureau of Economic Analysis (BEA) Per Capita Personal Income Figures

	Income	Rank of Michigan Counties
BEA Per Capita Personal Income 2014	\$32,787	54 th of 83 counties
BEA Per Capita Personal Income 2013	\$31,767	50 th of 83 counties
BEA Per Capita Personal Income 2012	\$30,974	51 st of 83 counties
BEA Per Capita Personal Income 2011	\$30,685	48 th of 83 counties
BEA Per Capita Personal Income 2010	\$28,889	50 th of 83 counties
BEA Per Capita Personal Income 2000	\$23,591	40 th of 83 counties

(BEA PCPI figures are greater than Census figures for comparable years due to deductions for retirement, Medicaid, Medicare payments, and the value of food stamps, among other things)

Employment Statistics

Category	Shiawassee	Michigan
Labor Force	33,194	4,863,000
Employed	31,675	4,622,000
Unemployed	1,519	241,000
Unemployment Rate* in August 2016	4.6	4.9
Unemployment Rate* in July 2016	5.3	5.4
Unemployment Rate* in August 2015	4.7	5.2

*Rate equals unemployment divided by labor force.

(Source: Michigan Bureau of Labor Market Information and Strategic Initiatives, August 2016,
<http://www.milmi.org/>)

Estimated Poverty Status in 2014

Age Groups	Number	90% Confidence Interval	Percent	90% Confidence Interval
Shiawassee County				
All ages in poverty	10,349	8,936 to 11,762	15.3%	13.2 to 17.4
Ages 0-17 in poverty	3,444	2,886 to 4,002	23.0%	19.3 to 26.7
Ages 5-17 in families in poverty	2,341	1,912 to 2,770	20.5%	16.7 to 24.3
Median household income	\$47,882	\$44,700 to \$50,974		
Michigan				
All ages in poverty	1,567,465	1,544,878 to 1,590,052	16.2%	16.0 to 16.4
Ages 0-17 in poverty	492,257	482,257 to 502,469	22.6%	22.1 to 23.1
Ages 5-17 in families in poverty	336,070	327,094 to 345,046	20.8	20.2 to 21.4
Median household income	\$49,755	\$49,373 to \$50,137		
United States				
All ages in poverty	48,208,387	47,966,830 to 48,449,944	15.5%	15.4 to 15.6
Ages 0-17 in poverty	15,686,012	15,564,145 to 15,807,879	21.7%	21.5 to 21.9
Ages 5-17 in families in poverty	10,714,518	10,632,252 to 10,796,784	20.4%	20.2 to 20.6
Median household income	\$53,657	\$53,564 to \$53,750		

(Source: U.S. Census Bureau, Small Area Income and Poverty Estimates, <http://www.census.gov/did/www/saipe/data/interactive/#>)

Federal Poverty Thresholds in 2015 by Size of Family and Number of Related Children Under 18 Years of Age

Size of Family Unit	No Children	One Child	Two Children	Three Children	Four Children	Five Children
1 Person <65 years	\$12,331					
1 Person 65 and >	\$11,367					
2 people Householder < 65 years	\$15,871	\$16,337				
2 People Householder 65 and >	\$14,326	\$16,275				
3 People	\$18,540	\$19,078	\$19,096			
4 People	\$24,447	\$24,847	\$24,036	\$24,120		
5 People	\$29,482	\$29,911	\$28,995	\$28,286	\$27,853	
6 People	\$33,909	\$34,044	\$33,342	\$32,670	\$31,670	\$31,078
7 People	\$39,017	\$39,260	\$38,421	\$37,835	\$36,745	\$35,473
8 People	\$43,637	\$44,023	\$43,230	\$42,536	\$41,551	\$40,300
9 People or >	\$52,493	\$52,747	\$52,046	\$51,457	\$50,490	\$49,159

(Source: U. S. Census Bureau, Poverty Thresholds 2015, <http://www.census.gov/hhes/www/poverty/data/threshld/index.html>)

Appendix VI | SHIAWASSEE COUNTY HEALTH RANKINGS

APPENDIX VI

	Shiawassee County	Michigan	U.S.
Health Outcomes			
Premature death. Years of potential life lost before age 75 per 100,000 population (age-adjusted) (2011-2013)	7,189	7,218	6,600
Overall health. Percentage of adults reporting fair or poor health (age-adjusted) (2014)	14%	16%	18%
Physical health. Average number of physically unhealthy days reported in past 30 days (age-adjusted) (2014)	3.4	3.9	3.8
Mental health. Average number of mentally unhealthy days reported in past 30 days (age-adjusted) (2014)	3.6	4.2	3.7
Maternal and infant health. Percentage of live births with low birthweight (< 2500 grams) (2007-2013)	7%	8%	8%
Health Behaviors			
Tobacco. Percentage of adults who are current smokers (2014)	17%	21%	17%
Obesity. Percentage of adults that report a BMI of 30 or more (2012)	32%	31%	27%
Food environment. Index of factors that contribute to a healthy food environment, 0 (worst) to 10 (best) (2013)	7.2	7.1	7.2
Physical activity. Percentage of adults aged 20 and over reporting no leisure-time physical activity (2012)	21%	23%	23%
Active living environment. Percentage of population with adequate access to locations for physical activity (2010 & 2014)	62%	84%	84%
Drug and alcohol abuse. Percentage of adults reporting binge or heavy drinking (2014)	20%	20%	17%
Drug and alcohol abuse and injury. Percentage of driving deaths with alcohol involvement (2010-2014)	19%	30%	31%
Infectious disease. Number of newly diagnosed chlamydia cases per 100,000 population (2013)	214	454	447
Sexual and reproductive health. Teen birth rate per 1,000 female population, ages 15-19 (2007-2013)	25	29	35

(Source: 2016 County Health Rankings for Shiawassee County, Michigan and U.S. data)

	Shiawassee County	Michigan	U.S
Clinical Care			
Coverage and affordability. Percentage of population under age 65 without health insurance (2013)	13%	13%	17%
Access to health care/medical care. Ratio of population to primary care physicians (2013)	2,297:1	1,242:1	1,320:1
Access to dental care. Ratio of population to dentists (2014)	2,298:1	1,454:1	1,540:1
Access to behavioral health care. Ratio of population to mental health providers (2015)	831:1	450:1	490:1
Hospital utilization. Number of hospital stays for ambulatory-care sensitive conditions per 1,000 Medicare enrollees (2013)	50	59	54
Diabetes. Percentage of diabetic Medicare enrollees ages 65-75 that receive HbA1c monitoring (2013)	91%	86%	85%
Cancer. Percentage of female Medicare enrollees ages 67-69 that receive mammography screening (2013)	69%	65%	63%
Social and Economic Environment			
Education. Percentage of ninth-grade cohort that graduates in four years (2012-2013)	85%	78%	82%
Education. Percentage of adults ages 25-44 years with some post-secondary education (2010-2014)	63%	66%	64%
Employment, poverty, and income. Percentage of population ages 16 and older unemployed but seeking work (2014)	7%	7%	6%
Employment, poverty, and income. Percentage of children under age 18 in poverty (2014)	23%	23%	22%
Employment, poverty, and income. Ratio of household income at the 80th percentile to income at the 20th percentile (2010-2014)	4.1	4.7	4.7
Family and social support. Percentage of children that live in a household headed by single parent (2010-2014)	29%	34%	34%
Family and social support. Number of membership associations per 10,000 population (2013)	12.8	10.2	9.0
Violence. Number of reported violent crime offenses per 100,000 population (2010-2012)	236	464	392
Injury. Number of deaths due to injury per 100,000 population (2009-2013)	69	61	60

(Source: 2016 County Health Rankings for Shiawassee County, Michigan and U.S. data)

	Shiawassee County	Michigan	U.S.
Physical Environment			
Air, water, and toxic substances. Average daily density of fine particulate matter in micrograms per cubic meter (PM2.5) (2011)	21.1	11.5	11.4
Air, water, and toxic substances. Indicator of the presence of health-related drinking water violations. 1 - indicates the presence of a violation, 0 - indicates no violation (FY 2013-2014)	Yes	N/A	N/A
Housing. Percentage of households with at least 1 of 4 housing problems: overcrowding, high housing costs, or lack of kitchen or plumbing facilities (2008-2012)	15%	17%	19%
Transportation. Percentage of the workforce that drives alone to work (2010-2014)	83%	83%	76%
Transportation. Among workers who commute in their car alone, the percentage that commute more than 30 minutes (2010-2014)	43%	32%	31%

N/A – Data is not available

(Source: 2016 County Health Rankings for Shiawassee County, Michigan and U.S. data)